H.R. 2960, REAUTHORIZATION AND RENAMING OF THE COMPETITIVENESS POLICY COUNCIL

HEARING

BEFORE THE

SUBCOMMITTEE ON
ECONOMIC GROWTH AND CREDIT FORMATION

OF THE

COMMITTEE ON BANKING, FINANCE AND URBAN AFFAIRS
HOUSE OF REPRESENTATIVES

ONE HUNDRED THIRD CONGRESS

FIRST SESSION

NOVEMBER 9, 1993

Printed for the use of the Committee on Banking, Finance and Urban Affairs

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H.R. 2960, REAUTHORIZATION AND RENAMING OF THE COMPETITIVENESS POLICY COUNCIL

TUESDAY, NOVEMBER 9, 1993

HOUSE OF REPRESENTATIVES,
SUBCOMMITTEE ON ECONOMIC GROWTH AND
CREDIT FORMATION,
COMMITTEE ON BANKING, FINANCE AND URBAN AFFAIRS,
Washington, DC.

The subcommittee met, pursuant to notice, at 2:25 p.m., in room 2220, Rayburn House Office Building, Hon. Paul E. Kanjorski [chairman of the subcommittee] presiding.

Present: Chairman Kanjorski, Representatives LaFalce and Fingerhut.

Mr. LAFALCE. The Subcommittee on Economic Growth and Credit Formation will come to order.

In the absence of subcommittee chairman, Mr. Kanjorski, I am going to begin the hearing and I will read the statement I was going to make as a witness for the chairman instead.

As soon as Mr. Kanjorski gets here, I will leave the Chair to him.

STATEMENT OF HON. JOHN J. LaFALCE, A REPRESENTATIVE IN CONGRESS FROM THE STATE OF NEW YORK

Mr. LAFALCE. I am pleased to appear before this subcommittee this afternoon to discuss H.R. 2960, the bill to reauthorize the Competitiveness Policy Council and amend the Competitiveness Policy Council Act. As author of the legislation that created the council, I am particularly proud to be here to urge its continuation. This Council and its efforts on behalf of U.S. competitiveness are the culmination of over a decade's efforts by myself and others who have long urged pushing the competitiveness issue to the front of our national agenda. Now that we have finally made a start, it is essential we keep pushing forward.

I have been gratified by the aggressive approach the Council has taken in analyzing the competitiveness challenges facing the United States and recommending policies to meet those challenges. However, there remains much to do and the task ahead has been magnified by the many years preceding formation of the council in which we had no competitiveness strategy.

A decade ago, in 1983, as chairman of this very subcommittee, I began an extensive series of hearings on the competitiveness problems facing the United States. At that time, I said, "America's predominant economic position in the world is in jeopardy, and the consequences of continued decline in our industrial competitiveness will mean a permanently dislocated work force and reduced stand-

ard of living for most Americans." I also noted then that "the last decade has sent an unmistakable message. It is now time—in fact past time—to respond. If we sit back and do little but rely on truisms that ignore the current realities of global competition, then foreign industries and workers will continue to enjoy a critical advantage."

The result of those hearings was a report entitled "Forging an Industrial Competitiveness Strategy" that included in its recommendations establishment of a Council on Industrial Competitiveness. In 1984, the Industrial Competitiveness Act included as Title I a Council on Industrial Competitiveness. The legacy of those early efforts is today's Competitiveness Policy Council.

The statements I made in those early hearings over a decade ago ring as true today as they did then. In fact, the message today is even more urgent as we see restructuring and downsizing of our prominent corporations, persistent unemployment, and conversion of our defense industries to operations appropriate for a noncold war environment. We waited too long to develop a strategy that could have produced a strong, growth-oriented economy. For too long, policymakers refused to tackle our competitive problems for fear of being labeled advocates of industrial policy, engaged in picking winners and losers. As a result, we are now in the unenviable position of having to turn around our economy, halt the downward slide of our manufacturing base, and pull our economy back to an upward, productive path.

When I held the hearings on U.S. competitiveness 10 years ago, there was a core group of people who were worried then, as I was, about the economic direction of the United States. They testified before my committee. They included then-Governor Bill Clinton, Laura D'Andrea Tyson, Robert Reich, Ira Magaziner, and Lester Thurow. These same people are now actively shaping a real competitiveness strategy for this country and the CPC is a central part of that effort. It is a testament to the administration's commitment to such a strategy that it has offered its full support to reauthorization of the Council.

I see that the chairman of the subcommittee has come here. Paul, what is your pleasure, just finish my witness statement? OK.

The Council began its operation in June 1991. In March 1992, the Council issued its first report to the President and the Congress, "Building a Competitive America." The report diagnosed the underlying causes of America's competitiveness problem and identified six priority issues on which policymakers should focus: Savings and investment; education; technology; corporate governance and financial markets; health care costs; and trade policy. For each of these issues, the Council recommended a framework for action based on a strategy that would address the underlying weaknesses in the economy, while at the same time promoting the short-term recovery. The emphasis was on correcting the basic flaws in our economy and our approach to competitiveness, and finding solutions that would yield long-term results.

The Council made two specific proposals that mirrored what the Congress had previously supported. First, the United States must formulate a serious competitiveness strategy including both sector-specific and generic policies. In November 1991, the House of Rep-

resentatives did pass a resolution favoring such a comprehensive, coordinated competitiveness strategy for the United States and the Council's first annual report indicated clearly the Council's intent to contribute to the development of such a strategy.

Second, the Council urged that the administration include a competitiveness impact statement with each recommendation or report on legislation that it submits to Congress. This proposal emphasized the need to implement what was already mandated in the 1988 Omnibus Trade and Competitiveness Act, but by the time of the Council's report had not yet been acted upon.

In phase 2 of the Council's work, eight subcouncils of public and private leaders were created to analyze specific competitiveness issues. These subcouncils reflected the issue areas identified in the first report, Manufacturing—of which I was a member—Critical Technologies, Education, Training, Capital Formation, Public Infrastructure, Trade Policy, and Corporate Governance.

The subcouncils developed specific recommendations intended to turn around U.S. performance in each of these areas. Their work resulted in the Council's second report to the President and the Congress entitled "A Competitiveness Strategy for America."

I am especially pleased to note many of the manufacturing subcouncils' recommendations already have been incorporated under President Clinton's announced policies for a more competitive America. Such ideas as a permanent research and experimentation tax credit, a national network of manufacturing extension centers, greater emphasis on dual-use research and development for military/civilian technology, and a shift in the ratio of Federal funding between military and civilian dual-use research to 50–50. All were proposed by our subcouncil and all were adopted by President Clinton.

Several of our proposals from the manufacturing and critical technology subcouncils appeared in the President's technology policy announced in February, "Technology for America's Economic Growth, a New Direction to Build Economic Strength."

Now the Council is beginning to examine new issues, creating high-performance workplaces, capital allocation, tort reform, and social problems. Last month the Council issued its third report to the President and the "Congress, Enhancing American Competitiveness." It reiterated the urgency of employing a multiyear strategy for competitiveness, an effort it believes will suffer as the result of the failure of the President's economic stimulus package to pass the Senate. It called for a stronger focus on private and public investment. It applauded the administration's efforts to reduce the budget deficit; make institutional improvements in the Nation's public education system through proposed Goals 2000 legislation; and enhance job training through apprenticeships and school-to-work programs.

The Council believes more issues need attention. Immediate work is needed to develop proposals to improve the Nation's infrastructure and to provides for worker retraining and adjustment for those who lose their jobs as a result of displacements that are occurring. In addition, the Council's third report includes followup and assessment by four subcouncils—Technology, Public Infrastruc-

ture, Trade Policy and Training—on where we stand on these issues since their last report.

It is clear that the Council's work is far from complete. It is also clear that Council recommendations are helping to shape new policies that can move our economy forward. This Nation has made only a dent in correcting the fundamental problems that continue to erode our economic competitiveness and pull down our living standards and productivity. We must continue to forge ahead guided by the expertise and advice from the Competitiveness Policy Council.

That is why I introduced H.R. 2960 to reauthorize the Council and allow it to continue the excellent work it has begun.

Let me briefly summarize the principle provisions of H.R. 2960. It would reauthorize the Competitiveness Policy Council and make technical amendments to the original act. I might note that Senator Jeff Bingaman has introduced an identical bill in the Senate.

First, our bill would reauthorize the Council for 4 years rather than the original 2. Second, the bill would change the Council's name to the National Competitiveness Commission. Third, the bill would reduce the original annual authorized funding from $5 million to $2.5 million. And fourth, the various technical amendments clarifying the Council's authority would be made.

Mr. Kanjorski, I have no doubt that continuation of the Competitiveness Policy Council is in the best interest of the United States. The Council should be allowed to maintain the momentum it has developed in encouraging public debate, dialog, and understanding of the economic challenges we face, and in devising new policies to meet those challenges.

It is the Council's job to keep our eye on the ball, to keep us focused, to guide us as we define our policy goals. I would urge you and the subcommittee and the full committee to act favorably on H.R. 2960 and to give the Competitiveness Policy Council the authority to carry on the important work of making this country competitive again.

I thank you for the opportunity to be here and I thank you for indulging me as I, in order to move the schedule along, convened the subcommittee in your absence. Thank you.

[The prepared statement of Mr. LaFalce can be found in the appendix.]

Chairman KANJORSKI. Great job as chairman.

Do you have any questions of the——

Mr. FINGERHUT. Just briefly, Mr. Chairman. First, I want to commend Mr. LaFalce for his role in this important initiative from its inception. For those of us who are new to the Congress, it is a subject that we talk a lot about in our campaigns and it is gratifying to see the infrastructure in place to deal with it and also to see how much of what the competitiveness council has talked about is on our legislative agenda. So I really do mean it very sincerely when I say I think this has been a major contribution to our public policy debate.

I know we will have witnesses from the Council who we can ask about specific recommendations, so I will not do that to Mr. LaFalce, but I would like to get your assessment, Mr. LaFalce, on the macroapproach to this. What impact have the Council's rec-

ommendations have had on our agenda. Do you believe that we would be pursuing this agenda that we are today because of the new administration anyway, or whether in fact this is laying the groundwork—what is the degree to which this Council has the credibility to keep things on our agenda?

Mr. LaFalce. I think the fact that the administration very much wants the continuation of this Council is indicative of its value. They could have said, OK, we are in office now, we don't need the Council. That is not what they are saying. They are saying we are in office and we need the continuation of this Council, and there has been a very close working relationship.

The President appointed as his chief liaison to the Council and a member of the Council the chairperson of the Council of Economic Advisers, Laura D'Andrea Tyson. You could not have gotten a much more high ranking official. This was not a low level official.

Of course, the fact of the matter is that Laura was on the Council before she was a member of the administration, too, so there is a continuum there.

Also, you mentioned the macroperspective on this, and I have to start distinguishing here, and maybe this is not what you had in mind, but we have to be concerned, in order to have appropriate economic policy, both with macroeconomics and micro economics. Historically, there was a great debate within the United States as to which was important. There was a school of thought that said macroeconomic policy is virtually all; that is, you deal with the problem of the overly strong dollar in the early 1980's and everything else pretty much will take care of itself. You bring the value of the yen down from 260 to 200 or 175 or 150 or 125 or 100 and all is well. That was macroeconomics.

And there were other individuals who were aware of the importance of macroeconomics but also said do not slight microeconomics. That is key, too. You must talk about microeconomics.

I was one of those individuals, and I tried to forge an appropriate balance between considerations given to macro and microeconomics with the Competitiveness Policy Council, in my judgment, being interested in both, but having primary concern over the micro, and I think that is the way it has worked out.

You know, the macroeconomics pretty much has to do with monetary policy of the U.S. Government vis-a-vis other countries; of fiscal policy, the appropriate level of indebtedness we can have in our country and other countries should have; coordination between the fiscal and monetary policies of the United States and the other industrialized countries of the world, and so forth. Whereas a microeconomic policy has to do with the whole gamut of other activities, some not sector-specific whatsoever but some very, very sector-specific.

In order to do the right job, you must be interested in all of the above and try to meld them together in some coherent group of strategies. And I think this is what the Competitiveness Policy Council tries to do to be of assistance to the administration. I think the administration is using it.

When Bob Reich came in as the chairman of the Economic Working Group for the transition team, the first thing he did was call up the chairman of the Competitiveness Policy Council and said,

OK, I have to come up with recommendations for the President, give me everything you have, and that became that body of knowledge, the principal ammunition that they were using to develop their game plans.

They just took everything the Competitiveness Policy Council had done, knowing the quality of their work, and incorporated that as being their primary resource material in the formation of their recommendations to the President.

Correct me if I am wrong, and if I have not gone far enough, you may embellish on it.

Chairman KANJORSKI. Mr. Fingerhut.

Mr. FINGERHUT. Appreciate it. That was my only question.

Chairman KANJORSKI. One thing I have grown to appreciate in the 10 years I have been in Congress is Mr. LaFalce's direct response to questions.

Mr. LAFALCE. You opened the door.

Chairman KANJORSKI. I had to get that shot in, but I would be remiss if I did not have the record show that Congressman LaFalce has indeed been the leader in the Banking Committee, and in the Congress itself, in the forward thrust of establishing economic policy for the Nation, and to do so with some sort of organized thought process.

I have been a follower of that; I have enjoyed it and I have benefited from the role he has played over these many years. Some legislation that I have subsequently supported or introduced has been modeled to a large extent from the initial work carried on by Chairman LaFalce. So I congratulate you in seeing the reauthorization of your child, and I agree with you that it is very clear that it has been a substantive contributor to policy formation in the new administration. Without it, there would have been grave detriment, and it is through your foresight that we are fortunate to have this tool. We should continue it.

With that, I will see the second panel. I hope you can join us.

Mr. LAFALCE. I am ready to move the bill.

Chairman KANJORSKI. We are almost there.

[The prepared statement of Chairman Kanjorski can be found in the appendix.]

Chairman KANJORSKI. Shall we have the second panel join us? Dr. Fred Bergsten, chairman of the Competitiveness Policy Council, and Mr. Clyde Prestowitz, Jr., president of the Economic Strategy Institute.

Welcome to the hearing. We have your testimony. With unanimous consent, it will be entered into the record; but, Doctor, if you would like to synthesize it for us, we would appreciate it.

STATEMENT OF FRED BERGSTEN, Ph.D., CHAIRMAN OF THE COMPETITIVENESS POLICY COUNCIL

Mr. BERGSTEN. Mr. Chairman, it is a pleasure to be here and I can be exceedingly brief because our "father," Congressman LaFalce, has summarized our intent and our work to date better than I could have.

I have only one complaint about his testimony. When he was citing all those august people that appeared before his hearing in 1983, he forgot one.

Mr. LAFALCE. No, I didn't forget you.

Mr. BERGSTEN. Congressman LaFalce will remember that at that time when we were talking about industrial policy, and I said then and I believe this view is reflected already in the work of our Competitiveness Policy Council, that the United States has already had an industrial policy. It has policies toward individual sectors. It always has had; it has today; it always will have. The question is whether we do it intelligently, cost effectively, and in a way that promotes the national interest on a consistent basis.

One of the points I made to Congressman LaFalce in 1983, and which we are trying to do something about today through the Competitiveness Policy Council which he helped to create, is to develop a competitiveness strategy in an intelligent way; to anticipate problems; to respond to them in a comprehensive and cost-effective manner, rather than reactively, which has historically tended to be the U.S. norm in modern time. The Competitiveness Policy Council is committed to contributing to this objective.

I won't embellish upon what Congressman LaFalce said about our contribution to the new administration's work, but he is exactly right. When Bob Reich was appointed by President-elect Clinton to be in charge of economic policy in the transition period, he did call the Competitiveness Policy Council for help. We immediately gave him all of the work we were doing at that time. He met with our Council 2 weeks later, and spent most of the day with us. I know that not only the overall program benefited from our work, but then some of the things subsequently Secretary Reich worked on in the labor area, worker adjustment programs, and worker training efforts, were drawn very heavily from the work of the Competitiveness Policy Council. I think it is clear that a lot of our work made a direct contribution to the administration's program.

In October, we released an interim report assessing how the new administration is doing and we found a lot of pluses. We found that some things still need to be done better and further, and I would be happy to talk about them if you would like to.

The only other thing I would say is to remind you about the unique structure of this group. When Congress created the Council, it had the wisdom to put together a unique body, in constitutional terms, bringing together business leaders, labor leaders, government officials at both the Federal, State, and local levels. In our subcouncils, we have added over 20 Members of Congress and 200 representatives of the public.

The Council is totally bipartisan in political terms, and that means when we are able to agree, as we have unanimously in our two reports, we represent a rather significant consensus of the various key parts of American society.

One quasi-humorous aspect of that is we were recently taken to task by an editorial in the *Financial Times* of London for being corporatists. What they meant by that was that we were promoting cooperation among business, labor, and government in the United States. I took that criticism as quite a compliment and was delighted that we have been able to move in that direction. I don't think we have watered down our recommendations.

We have made tough proposals, a few of them have made it into legislation. Some have even been voted upon. A lot more remains

to be done, but I think our group can continue to help; and if you want us to do so, we are certainly willing.

[The prepared statement of Dr. Bergsten can be found in the appendix.]

Chairman KANJORSKI. Mr. Prestowitz.

STATEMENT OF CLYDE V. PRESTOWITZ, JR., Ph.D., PRESIDENT OF THE ECONOMIC STRATEGY INSTITUTE

Mr. PRESTOWITZ. Thank you, Mr. Chairman. As one who also was an early voice crying in the wilderness for competitiveness, I share many of the sentiments expressed by Congressman LaFalce and Mr. Bergsten. I have been gratified by the fact that Congress responded to the concerns that many of us expressed back in the early 1980's about declining competitiveness and created the Competitiveness Policy Council.

I think the Council has done important and useful work, both in focusing public attention on the competitiveness issue and in making specific recommendations with regard to policy to improve U.S. competitiveness.

I would like, if I could, to offer perhaps two suggestions. I think that most of us are really in the choir here and there is not any question about the support of all of us for continuation of the Council, but I would like to offer two thoughts with regard to the future work of the Council.

The competitiveness debate has essentially two aspects. One is the macroeconomic policy aspect and the other is the microeconomic policy aspect.

The macroeconomic policy discussion is fairly easy. It calls typically for increased savings rates, reducing the budget deficit, lower costs of capital—virtually motherhood and the flag proposals, which all we economists are for and all Congressman say they are for.

The debate then, as it transitions from macroeconomic to microeconomic, goes into what I call the transition stage in which such issues as worker training, education, corporate governance, and infrastructure are addressed. These are not the classic macroeconomic policy issues or tools, and they are typically areas in which the government already plays a very large role and so the discussion is about how can we utilize government policy better to improve our infrastructure or lower our cost of capital or what have you.

What is usually avoided, and this is true in virtually all of the bodies that address the question of competitiveness, is the question of specific sectorial policy. It is the last one addressed, and when it is addressed, it is always done very cautiously, because it inevitably elicits criticism to the effect that the government should not pick winners and losers.

And yet I believe that ultimately the core of the competitiveness question is the sectorial question. It was well articulated in a comment, and I am sure you have all heard the famous quip, potato chips, computer chips, what is the difference? They are all chips.

Implicit in that comment were the views of a macroeconomist to the effect that it does not matter what you make. And if it does not matter what you make, if the composition of your economy, the

structure of your industry is not important, then there is no competitiveness debate.

But if there is a competitiveness debate, it is centrally around this question of does it matter? Are potato chips or chocolate chips or wood chips or computer chips, do they have a different impact on your economy? Should you be as satisfied exporting pumpkins as exporting 747s, and, if not, then what are the policy implications?

It is in this latter area that the United States typically finds itself at sea. Or to change the metaphor, let me use the example of recent negotiations in the airline industry.

The United States has the world's most efficient airline industry. The U.S. carriers are far and away the lowest cost carriers. The average cost per seat mile in the U.S. industry is about 9.3 cents. Singapore Airlines, Malaysia's carrier, flies at about 10 cents per seat mile; British Airways, 14 cents; Lufthansa, 21; Swiss Air, 23. In a world of free trade, in a world of open free markets, the U.S. airlines would carry all of the world's passengers or most of them. And yet we see the bizarre situation in which the low cost, efficient, modern, up-to-date American carriers are being bought up by the high-cost, inefficient foreign carriers.

British Airways buys U.S. Air; KLM buys into Northwest. This is what I call the Jurassic Park effect. The dinosaurs are taking over the theme park.

You ask how can that happen? It happens because the dinosaurs, the inefficient carriers, are operating in protected markets, often wholly or partly government-owned or subsidized, and the effect of what they are doing by buying into U.S. airlines is to restructure the entire international airline system and to restructure it in such a way that the foreign buying airlines wind up with more advantageous international route structures than the U.S. airlines. The result of that is that American passengers, are diverted from U.S. carriers to foreign carriers, thereby putting the U.S. carriers at a disadvantage, even though they are the most efficient operators.

This can only happen because of a lack of policy in the United States. We account for 50 percent of all the world's airline miles, air passenger miles. We have enormous leverage in the international airline negotiations. We do not have a policy.

I could go on and cite similar examples in such areas as semiconductors or supercomputers or machine tools or what have you, but the point I am trying to make is that it is important for the United States to begin thinking about these sector-specific policies, and I urge that the Council attack this as a matter of high priority in its future work.

Second, as you know from your work here in the Congress, the larger bodies become, the less pointed, usually, are their recommendations. I have seen again in the competitiveness debate over the last 10 years a number of councils established, and very often the councils wind up making essentially, say, meaningless recommendations or noncontroversial or nonchallenging recommendations because in their attempt to include every possible interest group in their operations, they find it difficult to agree on anything except the lowest common denominator recommendations.

To avoid the danger of that, I would suggest that the Council attempt to limit the size of its panels so that there can be sharp debate and sharp and pointed recommendations and we avoid the lowest common denominator syndrome.

But with those two suggestions, let me place myself also behind the proposal to reauthorize the Council.

Thank you.

[The prepared statement of Mr. Prestowitz can be found in the appendix.]

Chairman KANJORSKI. Thank you very much. I would just like you to tell us what policy would avoid our airlines being taken over by the foreign airlines? Can you give me a policy that——

Mr. PRESTOWITZ. Oh, yes. The Transportation Department has to rule on whether to allow foreign acquisitions or investments in U.S. lines. I think our policy should be one of reciprocity.

United States airlines are not able to buy into British Airways, for example; not able to buy a controlling stake in any of the European airlines. And so my recommendation would be that until U.S. airlines are able to buy the same kind of controlling stake in a foreign airline, we should not allow the foreign airline to do the same in the United States.

Chairman KANJORSKI. Would that apply to Japan?

Mr. PRESTOWITZ. Yes.

Chairman KANJORSKI. Sounds to me like it is somewhat protectionist or antifree trade.

Mr. PRESTOWITZ. Well, when you are talking about the international airline market, it is kind of meaningless to talk about free trade. Many of the airlines are government-owned. Most of them are government-supported in one fashion or another. The agreements that govern travel between the United States and other countries are all bilateral negotiations, never specifically managed trade arrangements.

Chairman KANJORSKI. Free trade from the standpoint that the market is open for purchase. Have we not always taken pride in ourselves as having a free, purchasable market by anyone who has the dollars to do it?

Mr. PRESTOWITZ. Well, no, we don't. There are restrictions. We do not allow foreign purchasers to buy common carriers in the United States, for example, or broadcasters. We have restrictions on the amount that they can buy in an airline. We limit them to 25 percent of the voting stock of a U.S. airline, for example.

There are restrictions on the potential for investment in U.S. railroads, in U.S. defense industries. So, no, we do not have a completely laissez faire approach to it; no, sir.

Chairman KANJORSKI. So it is your feeling we should tighten these up. Do we deal on a nation-by-nation basis or do we deal with everyone outside the United States? How do you put a policy together where——

Mr. PRESTOWITZ. Well, I think you have to be attempting to achieve a kind of an equivalent balance. The United States is half of the world airline market. When we make—for example, we made a deal, an open skies arrangement with KLM. Under our arrangement with the Dutch, KLM is free to fly to any city in the United States and we are free to fly to any city in Holland.

There is only one city in Holland worth flying to, it is Amsterdam. There are at least 400 cities with similar kind of air traffic potential in the United States. I don't think that was a good deal.

I think if we could strike an open skies arrangement with the European Community, the entire community, that might be a deal worth looking at. If we can strike an open skies arrangement with the Oriental Airline Association, that might be a deal worth looking at. But trading the United States market for Singapore or for Holland is not much of a deal, I don't think.

Chairman KANJORSKI. You know, if I were to take the discussion that we have just had back to my congressional district, it would be probably the strongest argument that the average constituent would have that we should not support NAFTA, because there is a real question as to what the results will be and what kind of unanticipated events will occur. Clearly, the average American does not think he knows enough about the deal to walk into the dark.

Mr. PRESTOWITZ. I am not sure I am following your argument exactly.

Chairman KANJORSKI. The argument we have just made, that you have given a beautiful example of, shows that through lack of good national policy on the part of the United States we have allowed a dinosaur to eat up our most efficient airlines. If we could do as dumb a thing as that, then it would seem to me we could do just as dumb a thing in negotiating NAFTA and not understanding the consequences.

That is probably the best argument why we should vote it down until we understand all the ramifications. Obviously, the American people do not because all of us have heard enough—I was going to say I assume the two gentlemen at the table are pro-NAFTA.

Mr. PRESTOWITZ. That is correct, yes.

Mr. BERGSTEN. Yes.

Mr. PRESTOWITZ. But I would say a difference between NAFTA and the airline situation that I just described is that in the case of NAFTA, in fact, there is a policy. A great deal of thought and effort has gone in over the last 3 or 4 years designing and negotiating an arrangement with Mexico.

Chairman KANJORSKI. Then there should be empirical evidence as to just how many jobs will be gained or lost. Why are we thrashing around with some people saying half-a-million a year, some saying 1,000 a year, some saying it is a wash. It seems to me—I happen to be an undeclared Member, so run for cover, some might say. But the one criticism——

Mr. FINGERHUT. Sort of like reading the tea leaves on the wall.

Chairman KANJORSKI. The one criticism I would have of the Council, or any entity like this, is that you obviously write great papers, you think out good thought policy for the country, but you sure do not sell it. My constituents do not hear about it. I have never heard a more ill-informed constituency or electorate. Please understand, I am criticizing now the administration and the President.

Mr. LAFALCE. That is different than the Council.

Chairman KANJORSKI. No, no, I am saying you have the opportunity also. It is like going to war and not explaining to the country why we have to go to war and then wondering why the country

does not support going to war. It seems to me you have certain steps you have to go through with the electorate in a democratic society like ours, and if you have not penetrated to that depth, you just cannot move much further with the policy until you have.

We are going to have a vote on the 17th. I think it is going to be a vote that substantially says that you do not change direction or policy significantly unless you can reasonably be assured of the results, and you are informed of those results and you are satisfied with the level of that information. That has not happened in this case.

Mr. PRESTOWITZ. But I would argue in the case of the NAFTA, you have got just about all the assurance that you can possibly have of the positive results. Now, you asked why can't people decide whether it is 500,000 jobs or 200,000 jobs. You have to realize that in terms of the magnitude of the numbers that we are talking about, $6 trillion economy, that number of jobs is very small. I mean you could be off by 1 percent. You could have a 99 percent on a test and that 1 percent would be 200,000 jobs.

So the fact that economists cannot kind of narrow it down to a specific thousand number of jobs, I don't think means that the numbers are no good. But if you look at it in a somewhat broader light—you know, ask yourself, compared to what?

At the moment, there are very few barriers on the United States side to imports from Mexico. At the moment there is nothing to prevent any company who wants to go to Mexico and invest and produce in Mexico to do so. There are very substantial barriers on the Mexican side to imports from the United States, and there are very heavy requirements at the moment on United States investors who go to Mexico to reexport out of Mexico.

Chairman KANJORSKI. So the logic of that would follow——

Mr. PRESTOWITZ. So the barriers are being removed to Mexico.

Chairman KANJORSKI. Why not do that for the airline policy; construct barriers on the American side?

Mr. PRESTOWITZ. No, in the case of the Mexicans, we have negotiated to remove the barriers on the Mexican side.

Chairman KANJORSKI. That is NAFTA.

Mr. PRESTOWITZ. That is right.

Chairman KANJORSKI. But if NAFTA does not pass, your argument is that we should do to Mexico what we should have done to the airlines; put the comparable barriers on the Mexican side.

Mr. PRESTOWITZ. In any negotiation you have to have something to bargain with. And in the case of the airline negotiation, if you allow, if you take a unilateral open skies, free trade approach, you have nothing to bargain with to get rid of the other guy's barriers. In the case of NAFTA, we had something to bargain with, to get rid of their barriers, that was their need for investment.

Chairman KANJORSKI. I am only staying on this because it is bothering me, the lack of having a defined industrial policy. I agree you always have a policy. There is never a void. But I do not think we have a defined policy, and I think NAFTA would have passed if we had a plan laid out by the last administration.

That is the only question the American people have been asking. What happens if we lose jobs; where are we going to make them up? And there is a silence that is shocking.

Mr. BERGSTEN. I agree with you. In fact, I think that the underlying anxieties that have caused such a massive debate over NAFTA and such doubts about the treaty go to the question of whether we have the ability to compete in the world economy and whether we have a strategy for enabling us to do so.

If that had been done, and if we had worker training programs as part of that effort, if we had adjustment strategies to deal with the people who might lose their jobs as part of the transition, then I don't think this heated debate would be going on. That is why the work of this Council is so important. It is critical for the administration to continue moving down that road and, hopefully, when the next trade treaty is ready, we will have a stronger base and a stronger foundation for going into it.

Chairman KANJORSKI. NAFTA II, you mean.

Mr. BERGSTEN. I wish we had it now going into the NAFTA debate. My own personal position, not that of the Council, is that NAFTA is a good agreement and it should be supported, very much for the reasons Clyde said. But, at the same time, I fully understand the anxieties and doubts because we have such serious underlying structural problems that do jeopardize our competitiveness, and make people wonder if we will be able to compete in a market that is opened up. At a minimum, we have to move simultaneously with this whole range of domestic competitiveness issues in order to take advantage of the opportunities created by NAFTA or any other trade treaty.

Chairman KANJORSKI. Mr. LaFalce.

Mr. LAFALCE. Let me just point out a few things. When we were creating the Council, we thought it very important to have representatives of government, representatives of labor, representatives of business. And historically the Council has been able to come to closure on the vast preponderance of issues that it has discussed. Issues such as savings, issues such as trade policies, and so forth. They have had difficulty on certain trade issues. Not on all trade issues, but on certain trade issues.

And so I do not believe that there is any council policy as such on NAFTA. The individuals here, though, are also heads of other organizations in their own right and they are also human beings and economists in their own right and are expressing their own individual, strongly felt, well-reasoned positions on NAFTA.

So I just want to clarify this is not a part of this policy council position on NAFTA.

Let me also say, too, that in my judgment being procompetitive does not make you either a total free trader or a total protectionist. One of the difficulties that I had in the 1980's, when I talked about competitiveness, I oftentimes would alienate labor unions, who thought I was talking about unrestricted, unadulterated free trade under any and all times and circumstances.

I had difficulties, too, because I was also promoting the Canadian Free Trade Agreement in that time. And when I would be looking for business groups, when I talked about competitiveness, they saw that historically I had been backed by labor and, therefore, I must be talking about protectionism, and so I was opposed by virtually everyone.

Mr. BERGSTEN. But somehow you got reelected.

Mr. LAFALCE. By a smaller and smaller margin. You are speaking of an historical truth.

Mr. BERGSTEN. Also a prediction for the future.

Mr. LAFALCE. But I just want to say that I was able to advance in 1986 the Competitiveness Council. Remember we passed the Trade bill in 1986 and it got vetoed. One of the reasons that President Reagan vetoed it, in his veto message, was because he said specifically I am vetoing this for the following three reasons: The Competitiveness Policy Council. I forgot what the other ones were. That was number one. I think it was the Competitiveness Exchange Rates Act and my international debt management facilities, when I wanted to engage in debt relief for Mexico. But he mentioned three or four items and I think I was responsible for three of the four.

But in that same year, 1986, without any intellectual inconsistency, at least in my mind, I introduced legislation to repeal the Maquiladora Program, because I saw severe problems developing on account of the Maquiladora Program. So I think individuals can in good faith promote the concepts of competitiveness, promote the Competitiveness Policy Council and be either pro or anti this particular NAFTA.

So I don't think we ought to muddy the waters about the Council with the debate over NAFTA, where everyone who agrees on a competitiveness council's policy need have intellectually defensible positions on NAFTA, is all I wanted to say.

Chairman KANJORSKI. Mr. Fingerhut.

Mr. FINGERHUT. Thank you, Mr. Chairman. First of all, let me say that this is an unusual opportunity for me to talk about an important subject with two very knowledgeable and well-known experts, so if I go into a little bit of detail here, it is sort of like being a kid in a candy store as opposed to questioning the basis of the report.

The other thing that I would like to add is that I think the chairman's point about NAFTA is extraordinarily well taken. As someone who intends to vote no, regrettably and regretfully, it is precisely because we have failed to put in place the kinds of policies that we are talking about here in advance of adding this particular challenge to our workplace. These are challenges particularly hard felt in the so-called Rust Belt areas from which I hail in northeast Ohio.

I think had we had a focus on these policies for a number of years, then not only would we be better able to withstand the competition to come, but frankly, the government would have a lot more credibility in saying this is just a short-term problem for a long-term gain. We don't have that credibility today in those areas of the country.

Having said that, let me ask one question. Dr. Prestowitz, in your testimony, you said something about making sure that the Council does not become a place, based on the structure, where the lowest common denominator prevails. I was leafing through the report, I think I saw two instances of dissents. Actually, this was your second, the second report.

There was one dissent on the mixture of taxes and cuts in the budget, and then there was apparently a dissent on the gas tax recommendation in this later report.

Is the current structure a problem in this regard? Would you recommend changes to make the Council bring issues into more sharp focus, or is it OK the way it is and you don't want us to dilute it?

Mr. PRESTOWITZ. I would lead in the direction of reducing the size of the panels that are addressing particular issues.

Mr. BERGSTEN. You mean the subcouncil?

Mr. PRESTOWITZ. Right.

Mr. BERGSTEN. But the question was on the full Council.

Mr. FINGERHUT. My question was on whatever it was you were referring to in your testimony.

Mr. PRESTOWITZ. Subcouncil, sorry.

Mr. FINGERHUT. I am not familiar enough, Mr. Chairman, with the legislation to know what the specific current state of affairs is in the current draft bill, but I would like us to at least take that recommendation into account.

Getting into some of the specifics of the current proposal I was intrigued by the discussion of the need to increase not only public investment but private investment. And as I know you are aware, this is a hotly debated subject in the Congress.

I noted your recommendation with respect to the R&D tax credit recommendation, that it be permanent. You had what I consider to be a very well written discussion of the investment tax credit. In fact, Mr. Chairman, if you will allow me, I would like to even quote it, because it is on page 9 of the current draft report.

Again, as a new Member here, one of the things that I was truly disconcerted about was how quickly the Ways and Means Committee disregarded the President's recommendation to institute an investment tax credit. And I am quite certain, indeed I would place an awful large bet on the fact, that if that recommendation had been brought to the entire House of Representatives instead of just the membership of that committee, that the tradeoff between the corporate tax rate and the investment tax credit that the committee chose would not have been the same tradeoff that the entire body would have made.

And the Council noted that the opposition, the explanation for the Ways and Means Committee's action in that regard was that the corporate community, which was to, quote, unquote, ". . . benefit from the ITC, did not support it and that the Council did not propose an equipment tax credit because it would be popular in the business community. We did so because we believe that such an incentive would channel more corporate spending into high payoff investment. Our purpose was to use tax incentives to change existing corporate behavior and encourage job creating investments. Therefore, we were not surprised when corporations showed limited enthusiasm for the proposal. What did surprise us, however, was that this lack of enthusiasm was so dispositive in the decision to drop the whole idea."

I can only echo that and say amen, and wish that a number of people in decisionmaking positions around here would read that statement as well.

But my question in this regard is in addition to the R&D credit and the ITC, would you comment on the other ideas that float around here to increase private investment? Most notably capital gains tax cuts, whether they are targeted or not targeted, whether they are of short-term or long-term duration, and any other sort of free floating proposals to increase private investment in capital infrastructure.

Mr. BERGSTEN. We looked at all those proposals in some depth, particularly in two of our subcouncils Congressman LaFalce mentioned that he is a member of, our Manufacturing Subcouncil and, parenthetically, I would say that is one way in which we have been addressing the microissues. We have not looked at specific sectors but we decided as we developed the detailed strategy presented in our report in March of this year to look in great depth at the manufacturing sector.

We do think it makes a difference what the country produces. We think manufacturing is critically important. We, in fact, suggest a need to increase the share of manufacturing in the economy, to reverse the downward trend of the last century, and try to get that share back up, both to increase job creation in the economy as a whole, high wage job creation, and to improve our trade performance.

The only way we will correct our huge trade deficit is by improving in our manufacturing trade performance. That, in turn, means manufacturers will have to play a higher share in the total economy; that means higher wages and the like, all of which then flows together with our recommendations for increasing productivity. The only way to do that is to get investment up.

We were then drawn to look at the whole range of possibilities for increasing private investment. As you said, we came down hard in favor of an investment tax credit. I testified on behalf of the Council before the Senate Finance Committee. I was appalled at the outcome, and we put it in polite language here, but it was because the business community said we would rather have a lower corporate tax rate than an investment tax credit. The investment tax credit, structured correctly, would alter the composition of investment in the economy in higher payoff, higher productivity, ways which would mean higher growth and higher wages in the economy as a whole. And we were appalled that it was rejected simply because the business community, for understandable reasons from their standpoint, said they did not want it.

Now, the administration, I must say, also needs to be criticized, because the administration's proposal was for a temporary investment tax credit, and very few firms would invest on the basis of a temporary tax credit; the credit needs to be permanent. We advocated that rather than the administration's version. We thought that was very important.

On your question, we looked at the capital gains tax cut. We looked at all different components or aspects or variants and we came away very skeptical that any of the capital gains tax cut proposals would create any significant increase in investment that one could count on. We did look at one other—you did not mention——

Mr. FINGERHUT. Excuse me for interrupting, but what about the particular version we did in fact pass, the capital gains rate for cer-

tain investments in small businesses? Was that something you looked at and had an opinion on.

Mr. BERGSTEN. We didn't look at it in great detail, but at the whole class of capital gains tax cuts, and were doubtful they would have significant effects on the economy as a whole. That is not to say they wouldn't have any effect. Maybe for promoting small business it would be worthwhile, but we doubted it would have any significant effect.

The one other one you did not mention was changing the depreciation allowances to conform economic depreciation with the tax treatment of depreciation, which are not consistent now. We essentially need faster depreciation for certain types of capital equipment.

We, again, think the support of capital equipment investment, which has a high payoff in economic terms, is important to get productivity growth up, job creation, and better standards of living in the long run.

Mr. FINGERHUT. What about the flip side, which you also mention, the recommendation of increasing private savings to be the resource for new infrastructure spending? I did not note any recommendations in particular and we have not taken anything up, certainly in this Congress, that is aimed at that.

Mr. BERGSTEN. I think that is the most vexatious issue in this whole debate. It is incredibly frustrating, but I have to tell you that nobody has come up with a demonstrably effective device for increasing private saving. Many things have been tried, as you know, such as changes in the Tax code, as well as changes in all types of incentives. None of them has had any demonstrable empirically supportable payoff in terms of increasing private saving. Therefore, what we have recommended is to increase public saving.

We know how to do that; eliminate the budget deficit. Now, as Clyde said, everybody can agree on that. It is like motherhood and apple pie, except it does not get done. And one purpose of our group is to try to forge a consensus among the different parts of the society to promote to the Congress and to the administration to accomplish some of these things.

Budget correction, which increases public saving, is frankly the only way that we believe you can increase the saving rates with any confidence. Therefore, with regret, we fell back on that. We also had to find plans to increase private saving. I will tell you, and hope you don't recoil, that the only plan we thought would work would be essentially a mandatory private saving plan by workers and corporations; mandatory, similar to Social Security, health insurance, and private pension programs. And we do not believe any other approach will work.

We did not recommend that, as there are obviously lots of problems with it. I simply tell you this to indicate that we worked at it very hard. We had all the top experts in the country and that is the one plan we could come up with.

Chairman KANJORSKI. If I may break in. There is a confusion in our system. On the one hand we say we want savings; and on the other hand the whole system is driven by consumption. Quite frankly, if you look at the average American teenager, the assets expended by them are not necessary, but we are all encouraging it,

regardless of whether you are a manufacturer or seller or part of the economy. This is what we are looking at, consumption. It is not hard to see why we are in trouble.

So as much as we talk about savings, we are not really interested in savings. You could encourage people to save and not expend in certain areas in certain ways.

Mr. BERGSTEN. But, Mr. Chairman, with all due respect, it is much more important for us to get interested in saving. Because if we consume the vast bulk of our income, as we are doing today, we will continue to have relatively low levels of consumption for the indefinite future. Unless we save a bigger share of the income now, invest it, get higher levels of productivity and economic growth, we will not increase the level of consumption over the long run. A higher share of consumption now means a lower level of consumption forever, in the future.

Chairman KANJORSKI. I absolutely agree. But what I am talking about is that a cultural change is necessary. You are not encouraging that cultural change if reporting the success of the economy says consumer consumption is up.

Mr. FINGERHUT. Absolutely right.

Chairman KANJORSKI. We are bragging about destroying the very thing that we are trying to encourage. It is a basic element to our society. You know, cross messages are going out from the government, from the leadership, from all of us, and from industry. They want more investment but they do not want to encourage more saving because that reduces consumption. You know, it was interesting, you said you were surprised about that election of greed to take the cut in corporate taxes as opposed to the investment tax credit. Doesn't that sum up our system? Given a choice, we select greed?

Mr. BERGSTEN. I didn't say I was surprised by the corporations' position. I was surprised that the Congress accepted it so readily.

Chairman KANJORSKI. Do we not just represent our society?

Mr. BERGSTEN. Well, I think sometimes it is necessary to take the lead in the interest of the society as a whole and not necessarily one component thereof.

Chairman KANJORSKI. Well NAFTA, to me, is a very defining thing in our society, in terms of lack of understanding. Ninety-seven percent of our population has no idea what a comparative or absolute advantage in international economics means. To get into this discussion is almost ludicrous, to try to persuade people when they do not have that basis of understanding.

If I had my way, I would require 2 hours a day of basic civics lessons on C–SPAN and I think people would understand what the Congress and the Senate, or the House and Senate do a little better. And, quite frankly, I am not sure that your organization should not come up with some recommendation for a level of education that allows people to understand the nature of these decisions that are made.

But we are not doing that. People are completely disassociated. The only fear they have is that they will lose their job if NAFTA passes. They feel they will not lose their job if NAFTA fails, and that is the decision that is coming down unless we change the climate.

I know Mr. Fingerhut has more questions. Do you want to move right into this?

Mr. FINGERHUT. I would be happy to, unless you want——

Chairman KANJORSKI. I want to talk about a bill pending, and then we can get back to that, if you want to finish.

Mr. FINGERHUT. Fine.

Chairman KANJORSKI. I am disturbed about something, and it has to do with the amount of R&D money provided and spent by the U.S. Government over the last 30 years. It amounts to almost $2 trillion. It is staggering. So I started to look into it, into what we, as an economy, have realized as a result of that expenditure.

We had some shocking testimony. I think there had been 1½ million R&D government-sponsored projects in the last 30 years, and there are 140,000 of these projects ongoing today. Nobody knows where they are. Nobody knows really what they have attained. There is no central data bank to find out what is out there, what was done, or whether projects are being duplicated. Probably on tens of things many, many scientists have spent the same amount of money, duplicating the work and not knowing it was already done. How do we market these things?

The thing that astounded me is we had one of our best government marketing organizations in before us and, with pride, they told us they were responsible for marketing 50 percent of the licenses of all R&D in the last 4 years. That amounted to 314 licenses. So that would mean that in the last 4 years, out of all that research and development, we have only licensed about 628 research and development findings to private industry. They also, interestingly enough, in those 4 years raised 90 percent of the total revenue for those licenses. They raised a grand total of $36 million in 4 years. Needless to say, I do not think that even pays for the stamps of notifying the successful R&D people. That is all the money that was raised in those 4 years.

I am wondering, if we are really interested in competitiveness, has someone on the Competitiveness Policy Council studied whether all this R&D is really aimed toward anything? Or is it just academic welfare and corporate welfare? Has there been a study of that nature?

Also, is it such useless research that it cannot develop any new products or any new businesses or jobs? Is it just throwaway money? Are we just putting researchers to work?

Mr. BERGSTEN. One of our initial subcouncils addressed the issue of critical technologies and brings together a superb group of experts from all walks of life, including notably industry, to work on the question. David Cheney, who staffed that subcouncil for us, is here and can talk about it in depth if you would like him to, but we did take a look at the basic question.

We did not feel the money had been wasted in any total sense but we certainly felt it was being misallocated given the current needs of the economy: Still far too much in defense; too little on commercial; too much on basic research; too little on commercialization thereof.

What turns out to be the case is that the United States probably is still the leader in the world in basic research although the gap has narrowed. But in terms of converting research into salable

products, we have clearly lagged behind our competitors. Our private sector has lagged and our government research programs have failed to support that in a significant way.

We looked at the comparative situation between the United States and other major competitors—Japan, Germany, and others—and what turns out to be critical is not so much the basic research but the 3rd, 7th, 12th iteration of the product to meet market demand and market specifications, in order to win market share. And that is where the United States, both in the private sector and with supportive efforts from the public sector, has lagged badly.

There needs to be major reorientation of our whole technology strategy both, again, in the private sector but certainly in the government backup to move into that direction. We put forward a very extensive set of proposals to do that. Many of them were, in fact, picked up, as Congressman LaFalce said at the outset, in the administration's technology initiative early this year.

Unfortunately, that initiative, like many others announced earlier this year, have gone by the wayside. Some got caught up in the short-term stimulus package early in the year. When that failed, they were not revised. There has been a lack of focus on bringing the different components of this competitive equation together in the administration's own efforts and, therefore, a lot of things have languished, even when put together initially in the right direction.

Now, as I said, if you would like to talk about that in greater detail, we would be happy to do so, but I think we have addressed most of your questions, by the extensive report that came from that subcouncil, and by the updated report from that same group that we put out just last month as part of our interim assessment of how things have gone so far during the first 6 months of the Clinton administration.

Chairman KANJORSKI. Could we get a copy of those reports?

Mr. BERGSTEN. Yes, indeed.

[The information referred to can be found in the appendix.]

Chairman KANJORSKI. We are preparing legislation which we think would solve some of these problems, and I would appreciate it if you could critique that legislation for us.

Mr. BERGSTEN. I would be very pleased to do so. We feel this is one of the Nation's highest priority areas. We identified it in our initial strategy as one of six key areas, set up an extensive work program on it, and we would be delighted to work with you and your proposals.

Chairman KANJORSKI. It is a four-legged program. I would like to get a general feeling from you if we should stop in our tracks right now and go back to the drawing board. We have found there is no uniform data base. So we have put into the bill the ability to establish, within a year, a data base for this technology, and we have had assurances that it could be accomplished within a year with some minor law changes.

[The information referred to can be found in the appendix.]

Chairman KANJORSKI. Another thing we felt is that, of the 1½ million research and development projects, there has to be 1 percent—15,000 that would be—that probably have some merit. And it is our opinion, anyway, that there is no marketing for this.

So we have established what we call the American Technology Network, a TV network, similar to Discovery, to do a 1-, 3-, or 5-minute entertaining piece on each of the different technologies. Then, if someone is interested in learning more, they could pull a menu up on a personal computer and pull back to any level of information from the most unsophisticated to the most sophisticated, depending on who the user is, to get an opinion as to whether this is usable.

Once we have identified small and medium-sized businessmen or entrepreneurs, the next problem we see is that there is no way to get through the red tape. Every job is a custom job. It would take a Philadelphia lawyer and a Beltway bandit 2 years to work through who you have to negotiate with to get a deal.

So we have structured a technology transfer corporation, a single entity you get referred to and who is authorized as the sole agent for the government to negotiate the deal. So you can walk out in 30, 60, 90 days with a license to go ahead and use this process.

Both the network, the marketing arm, and the technology transfer arm, have been structured so that 60 percent is owned by the government. However, it is profit driven insofar as the voting stock of the 40 percent controls what happens, and motivates by the profit line. Either they are successful or they lose. So this is not a governmental entity we are dealing with, it is really the private economy.

Finally, after we have the technology transfer corporation, our fourth leg is a technology transfer investment fund. We ask for a commitment of $3 billion a year, and through the secondary market leverage it to $12 billion a year, which would allow us to fund 12,000 $1-million ventures, capital ventures, or any combination of those.

Each of those undertakings could cause the employment of about 25 people, which means that you would create about 300,000 jobs a year directly by using that methodology—and then with the indirect jobs, add another 600,000. So you could get up to 900,000 jobs by using this technology.

Now, it is my opinion that if we had this in place today, there are probably 50 Members of Congress that could walk home to their districts and say, do not worry about NAFTA, every year for the next 5 years we will create 1,000 jobs per district in the United States. Any jobs lost as a result of NAFTA will be replaced.

This four-legged proposition, the uniform data base, the private/public joint venture of the corporation, the marketing tool, and the investment tool, do you find this to be a potential solution to the problem?

Mr. BERGSTEN. I think each of those four legs certainly moves in directions we have been advocating in our work and proposals, although they are a bit different in specifics. What I would like to do is take a look at the details of your legislation, have our subcouncil in fact go over them, give you the benefit of their advice and judgment, and see whether we can simply endorse it as is or give suggestions on improving it. But the basic themes of each of those pieces run very much in the direction we have been advocating and so we would look at it with a very favorable disposal to see if we could help you further refine it and help you promote it.

Chairman KANJORSKI. We will take you up on that.

The other thing we will take you up on is a thought I had. We have a Secondary Market bill moving through for businesses of all sizes, community and development, and I would like to have you look at that piece of legislation, because we are at a very important moment as to whether we get a larger piece or a smaller piece of the secondary market.

Mr. BERGSTEN. Right. Incidentally, we have another operation that we are just starting up on the entire capital allocation system of the economy, which is a very big issue in getting bigger bang for the investment.

Mr. FINGERHUT. Small project.

Mr. BERGSTEN. Right. We have very good people working on it, and we are keeping that group leaner, and meaner, and that, I think, would go to a whole range of secondary market questions, including industry specific ones. Again, I think we will have some very useful background and some intellectual capital we can help you with as you develop that.

Chairman KANJORSKI. Can you do this in a relatively short period of time?

Mr. BERGSTEN. We are ready.

Chairman KANJORSKI. You will get it.

Mr. Fingerhut.

Mr. FINGERHUT. Thank you, Mr. Chairman. By the way, I don't mind yielding at any time because so many of the subjects you have raised are subjects I am interested in as well.

In a way, I was chuckling during your earlier statement about mandatory civics education, because that has been one of my longtime proposals: Adult continuing education in government and economics; mandatory, by the way.

When I left off, we were talking about the consumption versus private savings and I think that flows logically to something else I wanted to ask about and that is the recommendation with respect to the division of the Federal budget into an investment account and a consumption account.

And by the way, I would note that in that one dissent that I saw in the second document on the subject of the budget reconciliation package, one of the little criticisms was we wish you would spend some time on making recommendations as to which government programs could be cut.

I am tying those two stands together and would like for you to give me your sense first of all of how we could usefully proceed now on this idea of an investment budget versus a consumption budget, which I support in concept. As you know, we have all sorts of reform committees and bills and reinventing government proposals and all sorts of things floating around. Is there a targeted, concerted place where we can move this idea?

And, second, if there is no question that if we are going to increase our investment spending and balance our budget that we are going to have to cut some of our consumption spending on the government side in the government's budget, and it would in fact be useful to get assistance from folks like you on helping make the case for what areas of government spending are consumption and what could usefully be cut back, what parts of this so-called Penny-

Kasich group, among other things, recommending more entitlement cutbacks.

And I make this case, but it is difficult, and you are sort of out there by yourself on it. So if you could tie those two subjects together, I would appreciate a response.

Mr. BERGSTEN. I think the Congress is really handicapped now in trying to make judgments on budget allocations that will support the long-term growth and productivity of the economy because you are not given a distinction between those two fundamental components of economic activities, consumption and investment.

There are legitimate debates about how you should score something.

Education. I would call most of it investment, but some people would say there are parts of education that are really consumption, don't provide for long-term payoff, and therefore need to be looked at differently.

Health care. Again, one could say there is an investment component to it. You might say part of it, cosmetic surgery, is consumption. You have to make some distinctions.

But there are clear-cut parts of the government budget, most of infrastructure spending, which really do need to be characterized as an investment. There are demonstrable multiplier effects from that to improve private investment, productivity in the economy as a whole. As the share of our GNP spent on public infrastructure has dropped more than 50 percent over the last 20 years, there is a clear correlation with the drop of productivity in the economy as a whole. That has meant lower growth in living standards, lower real wages, and creates all sorts of problems, reflected in the recent NAFTA debate.

But Congress is ill-served. It does not have at the moment a distinction between the two that can be agreed and then try to make some judgments as to what share of its total spending ought to go for longer term seed capital purposes.

A first step would be to agree on some definitions, decide what goes under which heading and then see, first of all, what is the recalculated Federal budget deficit. We then need to compare it with some norms, such as historical trends, what other countries do, and what would be necessary to achieve the kind of targets laid out in our report for getting productivity growth up even by a modest doubling, from 1 to 2 percent a year, without which growth in the economy, wage creation—job creation is going to be continue to be insufficient.

I think there are a lot of things that can be done. It needs to start with a conceptual decision that you want to know that difference; then a lot of technical work would have to be done.

Mr. FINGERHUT. You don't have to persuade me of the merits of the idea. I was persuaded long ago. Unlike other areas of the report, where you cite specific initiatives that you have endorsed or specific legislation that you think moves along the goal, is there such an initiative out there?

I know there are some things floating around, but is there anything out there you think moves us in the right direction on this?

Mr. BERGSTEN. I am not aware of any specific initiative that would do this. In the past, OMB has occasionally had attachments

to its annual reports that have talked about the concept. There has been some work done. There would be a basis for it but I don't think any initiative is out there right now to move in that direction.

Mr. FINGERHUT. If we brought some proposals to your attention, you would look at those as well, I assume.

Mr. BERGSTEN. We have recommended doing something of that type. We not only would look at it, but we would be willing to work with you in trying to develop it in some detail.

Mr. FINGERHUT. Thank you.

The other half of the question, if you could address it briefly, help identify areas that in fact can be cut without doing harm to the economy or to future growth. Is that something the Council intends to look into?

Mr. BERGSTEN. In our latest report we invited someone to invite us to do that. If there were a desire of a committee of the Congress, Congress as a whole, the administration, to ask our group to try to reach a consensus on some cuts, we would be willing to take it on and try to do it. We were able, with a lot of debate, to reach a unanimous judgment on what additional expenditures, including tax expenditures, needed to be done to boost productivity and growth. But we said in the very same breath, you cannot increase the budget deficit to do that and if you want us to look at what cuts would be desirable, that is less desirable for the economy, we would be willing to take on that challenge. So if you would want to get a resolution passed or some other kind of mandate to us to do that, we would welcome it. It would be tough, obviously, but we might be able to give you a leg up on it.

Mr. FINGERHUT. Mr. Chairman, is this reauthorizing legislation an appropriate place to consider making that request to these distinguished gentlemen?

Chairman KANJORSKI. As a matter of fact, I was going to make a point that the budget appropriations for your Council is about a third of the appropriations to the Banking Committee of the House. One thing that has been so disturbing over the last 2 or 3 years, since I have had a subcommittee chair, is the total lack of intellectual value in the House, if you will.

The fact that you are a resource and that we have not used you disturbs me, personally disturbs me, and I want to find out why we have not. Let us not have that happen any more.

But I think what my colleague says is correct, we would like to have you participate in a very strong way. If it takes a request from a subcommittee chairman or——

Mr. BERGSTEN. In a sense, the more formal the better, to give us the imprimatur of working with you in that way.

Chairman KANJORSKI. We are going to keep you so busy, Doctor, you will not believe it.

Mr. BERGSTEN. If you initiate the request, we will be there.

Mr. FINGERHUT. I am sure the chairman and the able subcommittee staff will figure out how to respond at this point.

Just a couple more things. I know the hour is late. Maybe I will run through and you can respond in any context you want.

You made a comment in your report about the fear that productivity growth would result simply in the shedding of workers. It

seems to be clear that is what is happening now, and I wonder if you would comment on the implications of that.

I mean the recommendations we need here are whether we need to take some action on that or respond to it in some way or change our thoughts here based on what is happening in that vein.

The second point is you also made a reference to the fact that you intend to analyze the competitive implications of the various health care proposals, and I would like to know where it is that we should be looking for those recommendations from you.

And third, and then I am done and you can respond to any of these, is that one of the places where we in fact have been under pressure to cut a great deal in the discretionary accounts is in the various so-called big ticket science projects, the space station, which survived by a single vote, and the supercollider, which has been defeated, the solid rocket booster, all these big ticket items which have been increasingly viewed by us as to where we can get some discretionary cuts because there is no place else to give in the budget, and I want to know whether you think those are the kind of investment spendings you would fight to protect or whether that does not cause you to lose sleep.

Those are my three last questions.

Mr. BERGSTEN. I will take them in reverse order. I think it is fair to say our Critical Technologies Subcouncil was not overwhelmingly enthused by those big ticket items. We felt shifting the budget from the basic focus it has had in the past from defense in a more commercial-oriented direction, along the lines of what you were saying before, made a lot of sense, and a major reorientation was needed.

We were not in any of our reports advocating continuation of those specific projects, so I think we were with you in that direction.

Remind me of your——

Mr. FINGERHUT. Health care analysis, of the competitive implications in the health care proposals and the productivity growth by shedding workers.

Mr. BERGSTEN. In health care, we have two groups analyzing the detailed impact of the current proposal—the administration's and the other ranking proposal—on the economy and American competitiveness. In our initial work, 1½ years ago, we highlighted health care cost as one of the six major competitiveness issues facing the country. We decided not to develop our own plan at that point. Lots of plans were being developed, but we said that as soon as those plans were on the table for debate, we wanted to take a very hard look at how they would affect the country's competitiveness, meaning the cost structure of private industry, the impact on the budget, therefore, national saving as well as the impact on the country's health, which underlies competitiveness as well.

We are now working on these analyses. We already have two expert groups assisting us and we are monitoring this work closely. I hope we have some preliminary results in the next 2 or 3 months that we will be able to share with all of you in that debate in 1994.

We would urge you and all the other Members of Congress to focus very heavily on that aspect of the debate. While, obviously, not an exclusion to equity and the healthiness of the population as

a whole, the economics of reform are absolutely central and we are not sure that has really gotten the kind of consideration it deserves.

Mr. FINGERHUT. I think my reason for raising it, Mr. Chairman, is precisely there are a lot of us who are interested in that aspect of it but find it difficult to find reliable, objective, nonpartisan, or bipartisan data on the subject because so many people have an axe to grind on this point.

Mr. BERGSTEN. Right. We have sifted through an enormous number of specific projects, proposals, and people that are working in the area. We have chosen two groups we think are reliable, balanced, nonpartisan, and don't have an axe to grind, and we are looking to them in the first instance to provide us with some analyses. The full Council will then get together, review their wish and present its thoughts early in the debate in 1994.

On the overall productivity question, we did inveigh against relying on worker shedding as an answer to the problem. At the same time, we would not do anything to impede that, because we do have to get productivity up and that is one way to do it, cut cost by firms, whether it is by labor costs or other costs. We immediately said, however, because of the negative effect that has on the job market, you have to, at the same time, make every possible effort to get the aggregate growth rate in the economy up. In other words, you can increase productivity and have higher growth rates over time, but that is the famous workerless growth.

Now, the answer to that is not to stop the productivity expansion, but to get the total growth rate up even higher. Instead of shooting for 2 percent growth, shoot for 3, 3½ as a longer run proposition. That does not sound impressive until you realize that economic growth rate has averaged 2 percent or less for the last 20 years and productivity growth has been a miserable 0.7 percent over the last 20 years.

Our objective is to get the productivity growth rate up to 2 percent. That, combined with labor force growth of about 1 percent, would be an economic growth of 3 to 3½ percent, which would offset productivity growth, give us higher standards of living, absorb the additions into the labor force every year, and get us back to full employment. That has to be the two-part strategy—higher productivity growth and more rapid economic growth in total. To do that, we think the whole comprehensive program we have laid out is essential.

Mr. FINGERHUT. Mr. Chairman, let me thank the witnesses, and let me also thank you for indulging me on this rather lengthy tour of economic policy. But it remains the case, unfortunately, that there are very few places in Congress where we get to have these kind of detailed discussions and, uniformly, it is in this subcommittee. So I thank you.

Mr. PRESTOWITZ. Mr. Chairman, if I may, I want to add a couple of comments just before you close.

One of my concerns continuing in this long running debate on competitiveness has to do with the question of the seriousness of those engaged in the debate.

I can't help but recall that around the turn of the century Great Britain faced many of the same kinds of challenges and questions

about its competitiveness that we are facing now. There were endless hearings in Great Britain. There were endless reports. Endless considerations of one proposal and another proposal, and yet somehow or other the British never seemed to be able to come to grips with what it was that was really leading or eroding their competitive strength.

We had a discussion in response to Mr. Fingerhut's question about savings rates, and Fred rightly pointed out many people have looked at this question and the savings rate in the United States over a long period of time appears to be something that—the private savings rate appears to be something that is very difficult to move, and that is certainly true, but it is movable.

We know during the Second World War we increased the savings rate in this country. We know that other countries have dramatically increased their savings rates when they decided it was important to do so. Japan, after the Second World War; Korea, Taiwan, Singapore today. All of them pursue a policy, at least in one way or another, that make it very attractive to save and painful not to do so. Those things are possible to do if you really want to do them.

I suggest that part of our difficulty is that maybe we do not really want to be competitive. I am not suggesting that is true of everyone here, but I just raise this as an issue. Because very often people in a debate tend to shut out as impossible possible courses of action that if they were really serious would be possible.

Second point I want to raise is that while this is a discussion of competitiveness and we talked about the importance of the micro and the macro aspects of competitiveness, that virtually all the discussion here today was on macro questions, tax policy, worker training policy, infrastructure policy, and so forth.

One of the interesting aspects of the debate about jobs is the question of, suppose you have adequate training programs for workers? Does that automatically mean that the worker is going to be employed? And there is a lot of evidence out there to suggest that, no, it does not; that you can train people to be software engineers, but if there are no software jobs, the training does not do them any good.

No one here today—and I don't mean this as a criticism—but there is a whole major industry or set of industries which are at the core of a lot of the growth in the economies of many of our competing nations which we are not in. Consumer electronics; we do not make CD–ROMs; we do not make semiconductor chip sets; we do not make videotape recorders or recording heads; and we are not educating people to do those kinds of things. This is $1 trillion international industry. We cannot get any growth out of that industry because we are not in the industry. And yet no one here today asked the question, how do we get back into that kind of an industry?

So I would like to close by reiterating my concern that the discussion about competitiveness, and particularly in the Competitiveness Policy Council, address those two questions. Are we really serious? Let's try hard to make recommendations that are going to attack the problem and not repeat the experience of the British over the past 75 years.

And, second, let us not forget that ultimately you have to make something, and we ought to be asking ourselves the question, what is it that we and our kids are going to make.

Chairman KANJORSKI. Let me answer that. I think it is a good criticism that you have there, and let me issue a challenge rather than sitting here with 15, 20 people, most of them on your staff or ours. I do not think we are going to make any waves out there and have people listen to what we are talking about unless we are more visible. I think it is time we have an open discussion between groups such as yours and Members of Congress, and invite in C–SPAN or somebody in to listen.

I think it is time we had this type of discussion, why are we not in these fields? A lot of why we do not even know what problems exist, is that we have this idea of political correctness. We are not even getting the right statistics any more.

We are getting—I read one the other day when I happened to be in Boston—about the educational facilities of the United States, that our students are significantly behind the Japanese and the Germans. That is true, except if you take the upper 50 percent of the American students; they are comparable. I was glad to hear that because I was visiting some students up in Boston at MIT, and to hear that they are OK, I was happy with that.

But we are getting to the point with political correctness that we even have to fundamentally change how statistics are laid out for us.

Let me bring up something Mr. Fingerhut brought up that has disturbed me. I cannot understand why someone has not raised the question of why the employer-employee relationship is the only relationship to be examined. I am not a historian, but the only reason it exists in the United States, and not the other 60 industrial nations, is the nature of how we got into collective bargaining. It was easy because employers and employees collectively bargained and health care became a benefit, it automatically moved to our system as a benefit. But it really has no broad-based economic relationship between the employer and the employee, it is really a social program.

So, if we go through the horrendous pain of structuring a health care system directly tied to the employer-employee relationship, I just have to wonder in 8, 10 years out, how competitive are we going to be with Japan, Germany, and the countries that do not have that relationship?

We are tied into a very archaic cultural system that is bound to change. They are tied into a more flexible social system that they can easily change.

But I do not hear anybody criticizing this. Everybody sort of agrees that this is the way to go. I understand why it is the way to go. It is the cheapest thing in the world; we do not have to pass a tax and think of it as a social policy. We just add it on to whatever is are already being done.

Why is the intellectual community not suggesting that this may not be the best system? This may deny industry the ability to change in the future, to be competitive, because they are going to be tied into a health care situation, whereas the Japanese and the Germans will not. They can shift capacity and technology and

methodology at will and would be more flexible and, therefore, more competitive.

Am I wrong on this or am I missing something?

Mr. BERGSTEN. It is a big topic. I am not sure Germans are more flexible in terms of moving the work force around. There is a lot of labor immobility in Europe. That is one of their structural problems, and they have some deep economic problems now, too.

Japan, too, has a lot of rigidity in its labor system. The so-called lifetime employment notion means that the Japanese firms essentially run a welfare system for their workers in the way the Europeans do it through their governments.

I visited the Toyota Tokoro Lexus plant, which is supposedly the world's most modern automobile plant. They still keep a lot of workers on the payroll who do nothing, and that is part of their social safety net. So I am not sure that their worker flexibility is all that much greater than ours.

Having said that, I think you raise a fair question. The Competitiveness Policy Council is looking at that aspect of the health care question. I already mentioned we are looking at the whole competitiveness aspect of health care and the one you mention is one of them. We also have a new subcouncil looking at the workplace—the traditional labor-management relationships and how those need to be changed to enable us to modernize and make more flexible our whole economic structure.

So we are looking at both those questions, including the intersection of them when it comes to health care. But I agree with you, those are very cutting-edge questions as one tries to modernize the economy and the labor-management system.

One reason it does not get a lot of attention from economists is that it cuts across traditional divisions. It is neither macroeconomic, sector-specific, but somewhere in between. Labor economists look at it; management experts tend to look at it; but the two have not met. We are trying to do that in our group, which does uniquely bring management, labor, and government people together.

So we have set up a separate subcouncil on that, jointly chaired by Lynn Williams, head of the United Steel Workers and a corporate CEO, and we are going to see if changes in that area would make sense as part of a comprehensive competitiveness strategy. So, again, I don't give you any answers, but we are also asking these questions. In our next report, which is less than 6 months from now, we will try to come up with some very precise proposals in this area as well.

Chairman KANJORSKI. I appreciate that, because I really do worry we are going to go through an awful lot of stress and strain and have a very inflexible system that is anticompetitive.

Mr. BERGSTEN. I think a number of individual companies have been moving toward a more flexible approach. That is part of the modernization of management that has happened in many firms, some of whom have resumed world class status, but it is not pervasive yet, and, clearly, a lot more has to be done.

Chairman KANJORSKI. Are you doing work on the legal approach to technological change? The one thing that has often struck me is the inhibition to change in our system. Very often, there are indus-

tries or groups that are invested by capital in a process or patent that has, by research and development, outlived its usefulness, somewhat like the oil and gas industry, who would certainly retard superconductivity if they could. These companies want to be able to extract the income that they believe is almost guaranteed because of the investments they have made.

If there were a supplanting of that technology by a major breakthrough, there would be a tendency to discourage use of the breakthrough so they could protect their investment. I have often thought of the need for a reverse condemnation concept, where we recognize and encourage capital to move into an area where the development curve is narrow or short before a new technology arises. Can we, as a matter of national policy, have a way of buying them out and bringing them on board for the new technology so there are not inhibitors in the economic system that discourage growth and change?

It struck me that superconductivity is a perfect example. There are so many interested parties in energy and the transmission of energy in nearly everything we do as a society. If we had this significant breakthrough, we would be the last society that would be able to grab it and run with it simply because our vested special interests have no way of being taken out of their investments.

It seems to me that if we wanted to move to newer wealth-creating technology and these people went along and made an investment, we should have a way of saying we will allow them to take it out, either through accelerated depreciation or some supplemental payment, but allow them to move out of that field and into the new field.

Is anyone doing any work in that area?

Mr. BERGSTEN. Well, we have made some proposals in that direction. As I said earlier, faster depreciation is something we think is, in general, a good idea. It would help deal with the problem you mention now.

Two thoughts that come to mind in responding to the specific problem. One is whether you have adequate competition in an industry so that companies are able to advance technologically. In other words, if you have adequate competition in a sector, presumably you will move more quickly into cutting-edge technologies and you will not be caught behind the curve. That goes to trade policy as well as the extent of your antitrust regulations and domestic support for competitive market structures.

In addition to the public policy aspects is whether you have government regulations that impede the kind of rapid transfer of resources you are talking about.

We have just commissioned a study on the impact of regulation, as part of another subcouncil studying the impact of regulations on the economy's competitiveness. One aspect of that is whether they are impeding exactly the kind of quick transfer of resources into more leading edge sectors that one needs.

More broadly, and this is something I suggested to Congressman LaFalce in those famous hearings 10 years ago, we still do not have a fundamental capacity within the government to judge where our basic industries are going.

This is something Clyde talked about, and he is exactly right—I have had the experience in government, as I am sure he has. That is, when an industry requests assistance, perhaps as in the situation you are talking about, maybe in a trade competitive situation, the government has no independent analysis or judgment of where that sector is going over 5 or 10 years and, therefore, whether its request for help is reasonable and, if so, what kind of help it needs. The government is essentially responsive, reactive to whatever is proposed from outside, scrambles around, tries to come up with ad hoc judgments and usually does a poor job of it.

The one thing we recommended in our first report, and I am delighted to say the International Trade Commission has begun to set up a mechanism to respond to it, is to develop baseline analyses of where key industries are going over a 5- or 10-year period against which to judge whether you need to make policy adjustments in those sectors; at a minimum, how you respond to proposals from those sectors to help them. That, I think, would be an enormous change in both our recognition of potential problems and our capability to deal with the difficulties of individual sectors. It would then provide a base for the specific kinds of problems you mention.

Mr. PRESTOWITZ. Just one comment on that. There is an interesting example of the kind of thing you are talking about. As Fred said, in most instances, if you have adequate competition, you tend to go in the direction you want to go. But if you take, for example, the public telephone service; the rates for telephones, of course, are set by public commissions and so are on depreciation schedules. Typically, in order to keep the rates low and to protect consumers, the public utility commissions or the telephone commissions will establish extremely low depreciation rates. So if you put a copper wire in the ground, the depreciation on that is 25 years.

That is one inhibiting factor to switching to optical fiber and broadband technology, and it is an area where the market cannot work because we regulate it. So it is a prime candidate for your attack on regulation.

Chairman KANJORSKI. That is exactly one of the problems I was speaking about. I appreciate that.

Now we know about the existence of the Council's availability and we welcome you on board. We will be participating very actively. I think you have proved the fact just by the questions that we have discussed here today, that there is a need for your reauthorization, so we appreciate your testimony.

Thank you very much.

Mr. BERGSTEN. We appreciate your support and look forward to working with you.

Chairman KANJORSKI. Thank you. The subcommittee is adjourned.

[Whereupon, at 4:25 p.m., the hearing was adjourned.]

APPENDIX

November 9, 1993

OPENING STATEMENT OF THE
HONORABLE PAUL E. KANJORSKI
CHAIRMAN

SUBCOMMITTEE ON ECONOMIC GROWTH AND CREDIT FORMATION
COMMITTEE ON BANKING, FINANCE, AND URBAN AFFAIRS

HEARING ON H.R. 2960
REAUTHORIZATION AND RENAMING OF THE
COMPETITIVENESS POLICY COUNCIL

November 9, 1993

This afternoon the Subcommittee meets to receive testimony on H.R. 2960, a bill introduced by Representative LaFalce to reauthorize and rename the Competitiveness Policy Council.

The Competitiveness Policy Council was created in 1988 by the Omnibus Trade and Competitiveness Act. The Council was founded in 1991 and is charged with recommending tactics to restore United States' competitiveness in the world economy.

One of my main convictions is that we in the Congress must develop a way to bridge the gap between innovative technologies developed in this Nation's government laboratories and academic institutions, and the effective commercialization of these technologies by United States private-sector businesses.

Through research in Federal laboratories and at colleges and universities, our country has a accumulated tens of thousands of patents, licenses, and technologies. These represent trillions of dollars in assets which should be used to create businesses to fuel economic growth and revitalization. Yet today, the primary beneficiaries of America's investments in research are our trade competitors, not United States businesses.

I believe that in order to be successful, an initiative must take existing federal programs, synthesize them, and make their united implementation through a public-private partnership a top priority.

I would like to thank all of our witnesses for participating in today's hearing. I am very interested in the discussion of American competitiveness, and I look forward to your remarks.

U.S. House of Representatives
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Proposal To Create New High-Paying Jobs and Promote Economic Growth by Encouraging the Commercialization of Federally-Held Patents, Technologies, and Innovative Processes

by U.S. Rep. Paul E. Kanjorski

A bold new initiative is vitally necessary to create large numbers of new high-paying jobs which offer real opportunity for future advancement. This initiative is critical to promote real economic growth throughout the country, to revitalize depressed urban and rural communities, and for the U.S. to regain its international industrial and manufacturing preeminence.

With the passage of the North American Free Trade Agreement by the U.S. House of Representatives, it is particularly important that we demonstrate to working men and women across this Nation that we are commitment to aggressively moving forward on initiatives to create significant numbers of new jobs. The legislation outlined below can play a critical role in making this commitment a reality.

Commercialization of Innovative New Technologies

Initiatives are already underway to enhance the utilization of advanced manufacturing processes, to establish an integrated computer information highway, and to facilitate the creation of private-sector consortia to undertake research and development for several critical technologies. Nevertheless, one essential component to utilizing advanced technologies to successful reinvigoration of the U.S. economy has thus far been largely overlooked: ***the development of a dynamic program to commercialize technologies already held by the Federal Government.***

This proposal is designed to bridge the gap between the innovative technologies, inventions, and processes developed at the Nation's government laboratories and at academic institutions, and their effective commercialization by private sector U.S. businesses.

Through research in Federal laboratories and at colleges and universities, we have accumulated tens of thousands of patents, licenses, and technologies. These

represent trillions of dollars of assets which should be used to create businesses to fuel economic growth and revitalization. Yet today, the primary beneficiaries of America's investments in research are our trade competitors, not U.S. businesses.

The innovative technology commercialization program proposed in this legislation will transform this wealth (Federally-held innovative new technologies) into new wealth (in the form of new business and employment opportunities). These new opportunities will be available for all Americans, but they are especially targeted to those in distressed urban and rural communities.

Critical Elements For a Successful Initiative

This legislative proposal is draft to address several critical principles:

- We must ***coordinate and centralize information*** on all technologies into a comprehensive, standardized, user-friendly inventory identifying their existence and potential applications. All future research grants should require the submission of a standardized commercialization plan for new patents, technologies, or innovations which arise in the course of the research.

  This system must be designed recognizing the needs of small and medium-sized business people to be able to access the inventory with minimal cost and effort, and without the need to retain consultants and lawyers to explore opportunities for commercializing innovative new technologies.

- There must be ***aggressive marketing and outreach*** to entrepreneurs and existing businesses which can move these technologies into commercial production. In this effort emphasis should be placed on using new information technologies, including the utilization of cable television and the modern electronic media. In addition, a profit incentive should be built into the process to reward people for successfully placing these technologies.

- ***Easily accessible financing and technical assistance*** must be readily available to entrepreneurs and business people interested in developing these technologies.

  In addition, to loans and loan guarantees, *special emphasis should also be placed on permitting the Federal Government to become a non-voting equity holder as an additional financing option.* Federal equity holding offers the potential for the development of a *self-funding financing program for investments to stimulate the commercialization of innovative technologies.*

- A ***one-stop shopping*** system must be developed which combines the centralized technology inventory system, unified Federal contracting authority, the Federally-assisted business financing options, and any necessary technical assistance. In additional to consolidating these functions at a single contact point, it is vital that paperwork and cost be kept to an absolute minimum.

New Job Creation Implications

This bold initiative to commercialize innovative technologies offers enormous new opportunities for business ownership, economic advancement, as well as significant new employment opportunities for all Americans, and particularly for minority and disadvantaged people. By enacting Rep. Kanjorski's H.R. 500 (closing the transfer price loophole), an additional $3 billion per year can be directed to making this program a reality *(see below)*. By using these funds to underwrite new business financing to commercialize innovative technologies, the Federal Government should be able to leverage between $9 and $12 billion per year.

This translates into directly creating approximately 10,000 new $1 million small businesses each year, employing 20 to 25 people each. That means ***we can create 200,000 to 250,000 new, high-paying jobs with real future growth opportunities every year,*** or about **1,000,000 new jobs over the next four years!**

This is an average of ***2,300 new jobs for each Congressional District.***

In addition to these 1,000,000 new jobs, many additional jobs will be created indirectly; and the creation of a secondary market for these new business loans could multiplying the 1,000,000 new jobs into *5,000,000 to 10,000,000 new jobs*.

Closing the Transfer Price Loophole Provides a Source of Funds

As noted above, this bold new initiative will cost money. A significant source of new revenues -- which was a major campaign promise of President Clinton's -- has thus far been largely overlooked: ***the closing of the transfer price loophole.***

Rep. Kanjorski's bill to close the transfer price loophole (H.R. 500) has been scored by the Joint Tax Committee as providing more than $23 Billion over the next five years, an average of approximately $5 Billion per year. Of these new revenues, $3 Billion should be devoted for each of the next five years, to fund the jobs creating, innovative technology commercialization initiative.

Statement of

THE HONORABLE JOHN J. LaFALCE

before the

Subcommittee on Economic Growth and Credit Formation
Committee on Banking, Finance and Urban Affairs

November 9, 1993

Mr. Chairman and Members of the Committee, I am pleased to appear before you today to discuss H.R. 2960, a bill to reauthorize the Competitiveness Policy Council (CPC) and amend the Competitiveness Policy Council Act. As author of the legislation that created the Council, I am particularly proud to be here today to urge its continuation. This Council and its efforts on behalf of U.S. competitiveness are the culmination of over a decade's efforts by me and others who have long urged pushing the competitivenss issue to the front of our national agenda. Now that we have finally made a start, it is essential that we keep pushing forward.

I have been gratified by the aggressive approach the Council has taken in analyzing the competitiveness challenges facing the United States and recommending policies to meet those challenges. However, there remains much to do, and the task ahead has been magnified by the many years preceding formation of the Council in which we had no competitivenss strategy.

2

Prelude to the Competitiveness Policy Council

A decade ago, in 1983, as chairman of this very Subcommittee, I held an extensive series of hearings on the competitiveness problems facing the United States. At that time, I said, "America's predominant economic position in the world is in jeopardy, and the consequences of continued decline in our industrial competitiveness will mean a permanently dislocated work force and reduced standard of living for most Americans." I also noted then that "the last decade has sent an unmistakable message. It is now time--in fact, past time--to respond. If we sit back and do little but rely on truisms that ignore the current realities of global competition, then foreign industries and workers will continue to enjoy a critical advantage." The result of those hearings was a report entitled "Forging an Industrial Competitiveness Strategy" that included in its recommendations establishment of a **Council on Industrial Competitiveness**. In 1984 the Industrial Competitiveness Act included as Title I a Council on Industrial Competitiveness. The legacy of these early efforts is today's Competitiveness Policy Council.

The statements I made in those early hearings ring as true today as they did ten years ago. In fact, the message today is even more urgent as we see restructuring and downsizing of our prominent corporations, persistent unemployment, and conversion of our defense industries to operations appropriate for a non-Cold War environment. We waited too long to develop a strategy

that could have produced a strong, growth-oriented economy. For too long, policymakers refused to tackle our competitive problems for fear of being labeled advocates of industrial policy, engaged in picking winners and losers. As a result, we are now in the unenviable position of having to turn around our economy, halt the downward slide of our manufacturing base, and pull our economy back to an upward, productive path.

When I held the hearings on U.S. competitiveness ten years ago, there was a core group of people who were worried as I was about the economic direction of the United States. They testified before my Committee. They included then-Governor Bill Clinton, Laura D'Andrea Tyson, Robert Reich, Ira Magaziner, and Lester Thurow. These same people are now actively shaping a real competitiveness strategy for this country, and the CPC is a central part of that effort. It is a testament to the Administration's commitment to such a strategy that it has offered its full support to reauthorization of the Council.

The Council's Track Record

The Council began its operations in June 1991. In March 1992, the Council issued its first report to the President and Congress, **Building a Competitive America**. The report diagnosed the underlying causes of America's competitiveness problem and identified six priority issues on which policymakers should focus: savings and investment; education; technology; corporate governance and financial markets; health care costs; and trade

policy. For each of these issues, the Council recommended a framework for action based on a strategy that would address the underlying weaknesses in the economy, while at the same time promoting short-term recovery. The emphasis was on correcting the basic flaws in our economy and our approach to competitiveness, and finding solutions that would yield long-term results.

The Council made two specific proposals that mirrored what the Congress had previously supported. First, the United States must formulate a serious competitiveness strategy including both sector-specific and generic policies. In November 1991, the House of Representatives passed a resolution favoring a comprehensive, coordinated competitiveness strategy for the United States, and the Council's First Annual Report indicated clearly the Council's intent to contribute to the development of such a strategy.

Second, the Council urged that the Administration include a Competitiveness Impact Statement with each recommendation or report on legislation that it submits to Congress. This proposal emphasized the need to implement what was already mandated in the 1988 Omnibus Trade and Competitiveness Act, but by the time of the Council's report had not yet been acted upon.

In phase two of the Council's work, eight subcouncils of public and private leaders were created to analyze specific competitiveness issues. These subcouncils reflected the issue areas identified in the first report: Manufacturing--of which I

was a member--Critical Technologies, Education, Training, Capital Formation, Public Infrastructure, Trade Policy, and Corporate Governance. The subcouncils developed specific recommendations intended to turn around U.S. performance in these areas. Their work resulted in the Council's second report to the President and Congress, **A Competitiveness Strategy for America**.

I am pleased to note that many of the Manufacturing Subcouncil's recommendations already have been incorporated into President Clinton's announced policies for a more competitive America. Such ideas as a permanent Research and Experimentation tax credit, a national network of manufacturing extension centers, greater emphasis on dual-use Research and Development for military/civilian technology, and a shift in the ratio of federal funding between military and civilian/dual use research to 50:50 all were proposed by our Subcouncil and were adopted by President Clinton. Several proposals from the Manufacturing and Critical Technologies Subcouncils appeared in the President's technology policy announced in February, Technology for America's Economic Growth, A New Direction to Build Economic Strength.

The Council is beginning to examine new issues--creating high-performance workplaces, capital allocation, tort reform, and social problems. Last month the Council issued its third report to the President and Congress, **Enhancing American Competitiveness**. It reiterated the urgency of employing a multiyear strategy for competitiveness, an effort it believes will suffer as the result of the failure of the President's

economic stimulus package to pass the Senate. It called for a stronger focus on private and public investment. It applauded the Administration's efforts to reduce the budget deficit; make institutional improvements in the nation's public education system through proposed "Goals 2000" legislation; and enhance job training through apprenticeships and school-to-work programs.

The Council believes more issues need attention. Immediate work is needed to develop proposals to improve the nation's infrastructure and to provide for worker retraining and adjustment for those who lose their jobs as the result of displacements that are occurring. In addition, the Council's third report includes follow-up and assessment by four Subcouncils--Technology, Public Infrastructure, Trade Policy, and Training--on where we stand on these issues since their last report.

It is clear that the Council's work is far from complete. It is also clear that Council recommendations are helping to shape new policies that can move our economy forward. This nation has made only a dent in correcting the fundamental problems that continue to erode our economic competitiveness and pull down our living standards and productivity. We must continue to forge ahead guided by the expertise and advice from the Competitiveness Policy Council. That is why I introduced **H.R. 2960** to reauthorize the Council and allow it to continue the excellent work it has begun.

H.R. 2960

Allow me to briefly summarize the main provisions of the legislation. H.R. 2960 would reauthorize the Competitiveness Policy Council and make technical amendments to the original Competitiveness Policy Council Act. I might note that Senator Bingaman has introduced an identical bill in the Senate.

First, the bill reauthorizes the Council for four years rather than the original two. This will allow it to focus on the necessary work at hand, competitiveness, rather than concern itself with whether or not its activities will continue or stop after a year's operations.

Second, the bill changes the Council's name to National Competitiveness Commission. This change is primarily intended to prevent confusion with past and present competitiveness councils such as the President's Commission on Industrial Competitiveness formed in 1983; the private-sector Council on Competitiveness created in 1986; and the President's Council on Competitiveness established in 1989.

Third, the bill reduces the original annual authorized funding from $5 million to $2.5 million in line with a recommendation made by the Administration and Senate last year.

Fourth, various technical amendments clarify the Council's aurthority to print reports; make distinctions between its mandated report on competitiveness and its annual report as defined under USG printing laws; update references to GS schedules to conform with changes in the law; and allow the

Commission to appoint temporary staff without regard to civil service rules and classifications, but with a salary cap.

Mr. Chairman, I have no doubt that continuation of the Competitiveness Policy Council is in the best interests of the United States. The Council should be allowed to maintain the momentum it has developed in encouraging public debate, dialogue, and understanding of the economic challenges we face, and in devising new policies to meet those challenges. It is the Council's job to keep our eye on the ball, to keep us focused, and to guide us as we define our policy goals. I urge the Committee to act favorably on H.R. 2960 and to give the Competitiveness Policy Council the authority to carry on the important work of making this country competitive again.

COMPETITIVENESS POLICY COUNCIL REAUTHORIZATION

Statement by

C. Fred Bergsten
Director, Institute for International Economics
Chairman, Competitiveness Policy Council

before the

Subcommittee on Economic Growth and Credit Formation
of the Committee on Banking, Finance and Urban Affairs
U.S. House of Representatives

November 9, 1993

Thank you for the opportunity to appear before the Subcommittee today to discuss the Competitiveness Policy Council Since this is the first time I have testified before this subcommittee, let me start by telling you a little about the Council.

The Competitiveness Policy Council is a unique institution. It was chartered by the Congress in 1988 to develop recommendations for the President and Congress on improving American competitiveness. The Council is bipartisan and quadripartite: our membership has equal representation of business executives, labor union presidents, government officials (federal and state) and academics. Four members are appointed by the President; four by the joint House leadership; and four by the joint Senate leadership. I was elected chairman at the Council's first meeting in June 1991. Attached is a list of the current membership of the Council.

As a federal advisory commission, none of the members receives federal compensation for their service on the Council. The only federal employee on the Council is Dr. Laura D'Andrea Tyson, Chair of the Council of Economic Advisers, who was appointed by President Clinton to serve as the federal government representative.

Building A Competitive America

Following its initial meeting in June 1991, the Council met once a month through February 1992, analyzing recent developments in US competitiveness. These discussions became the basis for the Council's First Annual Report to the President and Congress, "Building A Competitive America," issued in March 1992. The Council reported that there has been a slow deterioration in US competitiveness over the last two decades, and that this deterioration can be traced to three factors: (1) a short-term perspective in the private and public sectors, (2) perverse incentives in federal government policy, and (3) a failure of Americans to think globally. To address these factors, the Council called for a comprehensive strategy to improve the nation's standard of living. The Council established eight subcouncils to develop recommendations in the areas of Capital Formation, Corporate Governance and Financial Markets, Critical Technologies, Education, Manufacturing, Public Infrastructure,

Trade Policy and Training to help develop this comprehensive strategy.

A Competitiveness Strategy for America

The recommendations of the eight subcouncils were the foundation for the Council's Second Report to the President and Congress, "A Competitiveness Strategy for America" issued in March 1993. The Council made specific recommendations in three areas:

-- Investing in our workforce including education and training,

-- Promoting industry through technology and export promotion policy,

-- Investing in physical capital including public infrastructure and private investment.

We also recommended national goals for raising productivity, increasing investment, and increasing the national saving rate.

4

The Competitiveness Progress Report

One month ago, the Council issued a new report, Enhancing American Competitiveness: A Progress Report to the President and Congress. This report reviews the progress made by the President and Congress on competitiveness issues during first eight months of Clinton Administration. The Council notes several areas where significant progress is being made. For example, the Council endorses the far-reaching budget bill passed by the Congress this year. We also support the initiatives moving through the Congress on educational standards and the export promotion program announced recently by Commerce Secretary Brown.

Our report also flags certain policy areas where more action needs to be taken to promote competitiveness. In the 1992 campaign, President Clinton argued that boosting private and public investment in people, technology and infrastructure was the key to improving US productivity growth, international competitiveness and standards of living. Regrettably, the debate earlier this year over a short term fiscal stimulus distracted the Administration and the country from this imperative. We call on the President and Congress to resume their focus on long term investment measures to improve competitiveness.

First, we believe that we must significantly improve the quantity and quality of our public investment. The Council makes

specific suggestions for areas like technology, training, and infrastructure, and also addresses the political problem of convincing the public that such government investments are worthwhile. We urge the Administration to articulate for the public why long-term investment is necessary to improve our standard of living. We also believe that competitiveness can be used as a theme for explaining to the public how various Administration initiatives relate to each other.

One procedural reform we endorse would be the adoption of an "investment budget," whereby the Administration identifies and quantifies the investment elements in its annual economic program so that the Congress and the public can judge the split between investment and consumption. The Congress could then vote on the adequacy of the investment component as part of its annual budget resolution. Such a process could help mitigate the bias in the budget process against programs that have a delayed payoff but are critical for increasing national productivity, and thus standards of living, over the long run. Such investments must of course be fully paid for under budget rules.

Second, the United States also needs a comprehensive program to help workers who are adversely affected by policies that benefit the economy as a whole. Defense conversion, trade liberalization, and technological change are placing severe pressures on the US labor market. The Council calls on the

President and the Congress to develop policies which encourage labor market flexibility, moving workers from low-skilled, low-wage jobs to high-skilled, high-wage jobs in frontier industries while also offsetting adjustment burdens concentrated in certain regions and sectors. Such programs must have secure funding and adequate benefits to insure a meaningful effort to assist workers adjusting to changing economic conditions. Labor Secretary Reich has repeatedly referred to these recommendations, which were developed by our Training Subcouncil, chaired by Lynn Williams, President of the United Steelworkers of America.

Third, the Council is encouraged by the President's technology initiatives, which would substantially implement the Council's recommendations. The Administration's initial requests for increased technology funding were not fully approved by the Congress, however. The Council reaffirms its earlier recommendation that civilian technology programs be increased by at least $4 billion per year by FY97 without further aggravating the deficit. Our Technology Subcouncil believes that this should compensate for future declines in military research spending.

In addition, Congress should make permanent the research and experimentation tax credit which was included for only a temporary period in the recent budget package. Industry cannot take full advantage of a temporary tax credit. The Council urges

the Congress to make a long-term commitment to boosting research, which is essential to the country's competitiveness position.

Fourth, higher levels and more productive forms of private investment in plant and equipment, as well as research and development and worker training, are essential for improving American competitiveness and economic performance. The interim report reiterates the importance of lowering the hurdle rate for new investment by American industry. This should include consideration of a reconstituted investment tax credit and changes in depreciation allowances to make the tax life of new equipment more consistent with its competitive life.

The Council's Process

The Council's effort is augmented by the work of its various subcouncils. Under our legislation, these groups reflect the Council's membership, including 19 senior Administration officials, 22 members of Congress, 6 labor union presidents, 16 corporate CEOs, and other representatives of business, labor, state government and the public interest. Over 200 of the nation's top leaders participate in our initial eight subcouncils, established following our first report in March 1992. Together, these eight subcouncils have already met some 40 times. In addition to Council members, subcouncil chairs include

Peter G. Peterson, Erich Bloch, Ruben Mettler and Governor Gerald Baliles.

The Council announced in March of this year that it would begin work in the following five additional areas:

1. Creating High-Performance Workplaces
2. Capital Allocation
3. Health Care
4. Social Problems
5. Tort Reform

We are using a different model for each of these five issues depending on whether we think our best potential contribution would be analytical, developing recommendations or consensus building.

Summary of Council Achievements

The Council is fulfilling its statutory mandate to serve as a "public forum" by carrying out many types of outreach and involving various people from around the country in our inclusive process. Our activities since the fall of 1991 indicate that we have been fulfilling that role:

* The Council has met fifteen times for half-day or all-day sessions, totalling 110 hours of public meetings.

* We have distributed over 16,000 copies of our First Annual Report, Building a Competitive America, and over 6,000 copies of our Second Report, A Competitiveness Strategy for America. Both reports were received by the White House and the Senate Banking Committee and the Joint Economic Committee and discussed in over two dozen major publications.

* Dozens of public presentations of the Council's work, including Congressional testimonies, have been given by Council and Subcouncil members and staff.

* The initial eight Subcouncils established in March 1992 have held thirty-one meetings to date and continue to meet on a periodic basis. The Council will convene the first meeting of its newest group, the Subcouncil on Capital Allocation, tomorrow.

* The Council teamed up with Honeywell, the Council on Competitiveness, and the Congressional Economic Leadership Institute to present "Time Horizons: A Symposium on American Competitiveness" on December 4, 1992 on Capitol Hill. This conference examined the

various arguments regarding whether a short-term perspective is compromising the competitiveness of American industry. The proceedings are being prepared to be shown on public television.

* At its request, the Council has been working closely with the US International Trade Commission as it attempts to incorporate some of the competitiveness issues into its work agenda. The Council co-sponsored a seminar with the ITC to discuss the methodologies for preparing industry baseline projections.

H.R. 2960

I would like to accept your invitation and make a few specific remarks concerning H.R. 2960, a bill sponsored by Congressman LaFalce that would reauthorize the Council for three years. I support this bill in its entirety and deeply appreciate Congressman LaFalce's efforts in initiating this legislation. As some of you may know, Mr. LaFalce is the legislative father of the Council -- having conceived the forward-looking idea for such a mechanism a decade ago. In addition, Chairman LaFalce held a hearing of the Small Business Committee earlier this year to discuss the Council's work.

The Council's authorization expired on September 30, 1992. A reauthorization for the Council was passed last year twice by the House and three times by the Senate, but none of these bills became law. H.R. 2960 would retroactively reauthorize the Council for FY93 and extend the authorization from FY94 through FY96. The bill would authorize the Council for up to $2.5 million per year. We believe that this would be adequate. A few weeks ago, the Congress approved an appropriation for the Council of $1.1 million for FY94. (PL 103-121)

H.R. 2960 would also rename the Council to be the National Competitiveness Commission in order to reduce public confusion between this Council and other groups with similar names. The bill makes some technical changes and clarifies some administrative matters from the original legislation.

Mr. Chairman, thank you again for the opportunity to appear before the Committee. The Council looks forward to working closely with the Subcommittee in the future.

COMPETITIVENESS POLICY COUNCIL
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NEWS RELEASE

October 1, 1993

EMBARGO: October 6, 1993, 10:30 a.m., E.S.T.

COMPETITIVENESS POLICY COUNCIL CALLS ON ADMINISTRATION AND CONGRESS TO RESUME FOCUS ON US COMPETITIVENESS

NEWS CONFERENCE: October 6, 1993, 10:30 a.m., 8th Floor, 11 Dupont Circle, NW, Washington, DC

Contact: Howard Rosen (202) 387-9017

Washington, October 1---President Clinton's "competitiveness agenda" should now become the centerpiece of US economic policymaking, according to a new report of the Competitiveness Policy Council to the President and the Congress. The Council urges the adoption of a series of additional measures to increase the quantity and quality of public and private investment, without retreating on their efforts to reduce the budget deficit. The President's new initiatives on health care reform and reinventing government should be seen as integral parts of this strategy. So should the Administration's pending proposals on education, training, technology and trade--all of which need to be pursued vigorously to strengthen the nation's competitiveness prospects.

The Competitiveness Policy Council is a bipartisan national commission created by Congress. Its twelve members include corporate leaders, labor union presidents, senior government officials and representatives of the public (list attached). They were appointed by the President and by the joint leadership of the US Senate and House of Representatives. Laura D'Andrea Tyson, Chair of the Council of Economic Advisers, was recently appointed by the President to serve as the federal government representative on the Council, and she did not participate in the preparation of this report. The Council is chaired by Dr. C. Fred Bergsten, Director of the Institute for International Economics.

In the 1992 campaign, President Clinton argued that boosting private and public investment in people, technology and infrastructure was the key to improving US productivity growth, international competitiveness and standards of living. Regrettably, the debate earlier this year over a short term fiscal stimulus distracted the Administration and the country from this imperative. In its new report, the Council calls on the President and Congress to resume their focus on long term investment measures to improve competitiveness. The report highlights the many pro-competitive initiatives that are underway and points to the areas where the Administration and Congress should do more to achieve a pro-growth investment strategy in the months and years ahead.

Deficit Reduction

The budget package passed by the Congress in August takes an important first step in stemming the growth of the Federal budget deficit, thereby freeing up more of the nation's savings to be invested and raising America's standard of living. The Council is aware that many question the wisdom of further deficit reduction at a time when economic growth seems to be modest, but reiterates that the Administration and the Congress must persevere on this critical course, and seeks to articulate the crucial linkages between deficit reduction and the health of the nation's economy.

President Clinton and Vice President Gore's "Reinventing Government" initiative is an appropriate next step in restoring fiscal discipline. Increased productivity is at the center of any competitiveness strategy and the public sector must contribute to this outcome by sharply improving its own performance. Moreover, improving governmental accountability will enhance public confidence that the government can achieve the broader competitiveness goals which the Council advocates.

Health Care Reform

In its initial report to the President and the Congress in March 1992, the Council stressed that the soaring cost of health care was a major drain on the competitiveness of the American economy. We applaud the President's initiative to limit the rise in these costs (as well as to expand insurance coverage to all Americans). The Council, in its role as "competitiveness ombudsman," is currently studying the competitiveness impact of the various health care reform options and will reporting its findings in the near future.

Private Investment

As the Council explained in its first two reports to the President and the Congress[1], higher levels and more productive forms of private investment in plant and equipment, research and development, and worker training are essential for improving American competitiveness and economic performance. This interim report reiterates the importance of lowering the hurdle rate for new investment by American industry. This should include consideration of a reconstituted investment tax credit and changes in depreciation allowances to make the tax life of new equipment more consistent with its competitive life.

Trade Policy

Expanding overseas markets for US goods is critical for creating high-wage jobs in the United States and enabling American firms to achieve their full competitive potential. Toward that end, the Council applauds the Administration's pursuit of a "global growth strategy" and its crucially important efforts to bring the Uruguay

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[1] Building a Competitive America, the Council's 1992 report and A Competitiveness Strategy for America, the Council's 1993 report are both available from the Government Printing Office.

Round to a successful conclusion. In addition, the new report of the Trade Promotion Coordinating Committee (TPCC) mirrors many of the Council's earlier recommendations for expanding export financing and promotion, and for removing many of the present policy impediments to US exports. These initiatives deserve early Congressional action. The Council also urges the Administration to reach agreement with Japan (and perhaps the entire G-7) to lock in the stronger exchange rate for the yen that enables American companies to now compete with Japanese firms on an equitable basis.

The Public Investment Agenda

The Council urges that the public debate refocus on the critical importance of enhancing national investment in physical and human capital. One procedural reform would be the adoption of an "investment budget," whereby the Administration identifies and quantifies the investment elements in its annual economic program so that the Congress and the public can judge the split between investment and consumption. The Congress should then vote on the adequacy of the investment component as part of its annual budget resolution. Such a process could help mitigate the bias in the budget process against programs that have a delayed payoff but are critical for increasing national productivity, and thus standards of living, over the longer run. Such investments must of course be fully paid for under budget rules.

The Council makes the following specific public investment recommendations:

1. Human Resources

Institutional improvements in the US public education system may be the single most important pro-competitiveness step that can be taken at this time. The Administration's bill -- the "Goals 2000" legislation -- builds on the Council's recommendations for setting educational goals, establishing mechanisms to develop standards, and improving student assessments. There are some differences between the House and Senate bills which we hope will be resolved in a manner consistent with the Administration's approach. The Council believes that clear and challenging content and performance standards, student assessments based on those standards, training for teachers to teach to higher standards and greater accountability for schools and students are essential for improving the performance and equity of the education system.

The Council's recommendations for investing in people are based on the need for a system of life-long learning, beginning with the transition from school-to-work, continuous worker training and dislocated worker assistance. The Council is encouraged by the Administration's school-to-work proposal, which is consistent with the Council's recommendations, and we hope for speedy implementation of its provisions. Continuous worker training seems to have less priority on the current agenda and the Council calls on the Administration to facilitate training opportunities for all workers.

The United States also needs a comprehensive program to help workers who are adversely affected by policies that benefit the economy as a whole. Defense conversion, trade liberalization (as with NAFTA) and technological change are placing severe pressures on the US labor market. The Council calls on the President and the Congress to develop policies which encourage labor market flexibility, moving workers from low-skilled, low-wage jobs to high-skilled, high-wage jobs in frontier industries while also offsetting adjustment burdens concentrated in certain regions and sectors. Such a program must have secure funding and adequate benefits to insure a meaningful efforts to assist workers adjust to changing economic conditions. President Clinton has announced his broad intentions in this area but a specific program has not yet been offered.

2. Technology

The Council is encouraged by the President's technology initiatives, which would substantially implement the Council's recommendations. The Administration's initial requests for increased technology funding were not approved by the Congress, however, and the Council reaffirms its earlier recommendation that civilian technology programs be increased by at least $4 billion per year by FY97 without further aggravating the deficit.

In addition, Congress should make permanent the research and experimentation tax credit which was included for only a temporary period in the recent budget package. Industry cannot take full advantage of a temporary credit and the Council urges the Congress to make a long-term commitment to boosting research, which is essential to the country's competitiveness position.

3. Public Infrastructure

The gasoline tax should be increased further to fund additional infrastructure programs of at least $2 billion. The gasoline tax has long been a vehicle for funding these programs and should not be treated as general revenue. The Council believes that the American people are prepared to pay higher taxes when they can see the benefits in increased investment.

In addition, ill-considered transportation "demonstration" projects undermine the credibility of federal infrastructure investments. The Council urges a moratorium on future site-specific demonstration projects pending the establishment of a process to evaluate the merit of these "demonstrations."

Competitiveness Policy Council

Appointed by the President:

Albert Shanker *(Labor)*
President
American Federation of Teachers

Alexander Trowbridge *(Business)*
President
Trowbridge Partners

Laura D'Andrea Tyson *(Government)*
Chair
Council of Economic Advisers

Edward O. Vetter *(Public Interest)*
President
Edward O. Vetter and Associates

Appointed by the Senate:

Rand V. Araskog *(Business)*
Chairman and CEO
ITT Corporation

John Barry *(Labor)*
President
International Brotherhood
of Electrical Workers

William Graves *(Government)*
Secretary of State
State of Kansas

Bruce Scott *(Public Interest)*
Professor of Business Administration
Harvard Business School

Appointed by the House of Representatives:

C. Fred Bergsten, Chairman
(Public Interest)
Director
Institute for International Economics

John J. Murphy *(Business)*
Chairman and CEO
Dresser Industries, Inc.

Edward V. Regan *(Government)*
Former Comptroller
State of New York

Lynn R. Williams *(Labor)*
President
United Steelworkers of America

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ENHANCING AMERICAN COMPETITIVENESS:

A Progress Report to the President and Congress

Competitiveness Policy Council

October 1993

Competitiveness Policy Council

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Lynn R. Williams *(Labor)*
President
United Steelworkers of America

* *Laura D'Andrea Tyson was recently appointed to the Council and did not participate in the preparation of this report.*

Enhancing American Competitiveness:

A Progress Report to
the President and Congress

Competitiveness Policy Council

October 1993

I. Introduction

The United States is taking significant steps to enhance its competitiveness. Since our first report to the President and Congress in March 1992, the Competitiveness Policy Council has noted better practices in the business community and better policies in the federal government. During 1993, a series of forward-looking government initiatives has been launched and some have come to fruition. The most important initiative was the five-year deficit reduction program championed by the Administration and delivered by the Congress.

Nevertheless, much remains to be done. The Clinton Administration needs to resume emphasis on its original pro-competitive investment agenda despite the failure of its initial "economic stimulus" package.

The Administration should not allow fundamental investment goals to become subordinated to the new triad of health care reform, NAFTA, and "Reinventing Government." All three of these issues have important implications for American competitiveness.[1] Still, the Administration and Congress should not ignore vitally needed reforms in education and training, export promotion, public infrastructure, and technology policy. The President must of course establish priorities, and American competitiveness should be among these priorities. Moreover, we believe that the prospects for successful action on the "new triad" will be enhanced if public understanding is fostered as to how they relate to the broader themes of improving American competitiveness and productivity.

The focus on competitiveness suffered a serious blow from the political fallout surrounding the "economic stimulus" package earlier this year. That package confused a long-term investment strategy with a short-term stimulus. The capital spending aspects of the package were confused with immediate job creation. The relationship between deficit reduction and new investment was never clearly articulated. As a result, the failure of the package to pass the Senate cast a shadow over the Administration's entire investment program. This is especially troubling in light of the proven linkage between increased investment and higher productivity growth.

Our purpose in issuing this report is two-fold. First, we want to call public attention to the important progress that has occurred. In addition to our support for reducing the budget deficit, we applaud the Administration's efforts in promoting education standards, improving the coordination of technology policy, restarting the Uruguay Round and, most recently, in announcing initiatives to boost exports and reduce export disincentives.

Second, we want to help refocus attention on other key aspects of the competitiveness strategy that we advocated in March 1993:

1. providing incentives for private investment,
2. providing assistance to dislocated workers,
3. rebuilding transportation infrastructure,
4. incorporating competitiveness considerations into the development of all new governmental programs, and
5. articulating for the public how investment differs from consumption.

Although our discussion of private investment is placed at the end of the report, we do not mean to give it less emphasis. The lower interest rates that have resulted in part from the budget package, while enormously valuable, are not sufficient by themselves to spur the additional investment our economy needs. Smarter public investment and stronger pro-export policies will help, but further direct steps will be required to shift a larger share of GDP into investment.

II. The Council's Approach

The Competitiveness Policy Council is a 12-member bipartisan federal advisory committee whose members are drawn from business, labor, government, and the public interest. In 1992, we reported to the President and the Congress that "America's economic competitiveness... is eroding slowly but steadily."[2] We pointed out three underlying causes for this problem. The first is America's proclivity to think and act with a short-term horizon. A second fundamental problem, which helps explain the emphasis on the short-term, is the perverse incentives that permeate American society. For example, our tax laws penalize saving, tilt investment away from productive capital equipment, and favor consumption and debt. The third problem is America's slowness to recognize the need to think globally.

In March 1993, the Council issued its second major report to the President and the Congress. In this report, we laid out a comprehensive competitiveness strategy for America.[3] Our specific recommendations were developed through a series of public meetings of the full Council and eight Subcouncils focussing on Capital Formation, Corporate Governance, Critical Technologies, Education, Manufacturing, Public Infrastructure, Trade Policy, and Training.

The Council's strategy for improving American competitiveness begins with the setting of clear national goals. Our central objective is to increase the growth of national productivity—from less than 1 percent annually to at least 2 percent—in order to raise the national standard of living.

Faster productivity growth alone is not sufficient. Companies can become more efficient simply by laying off workers, as many are currently doing. However, in order to guarantee an increasing number of high-wage, high-skill jobs, the economy must expand by at least 3 to 3 1/2 percent annually. Attaining this level of expansion requires a large increase in national private investment (by at least 4 to 6 percent of GDP) which should be financed at home through increasing *domestic* private saving. It also requires a corresponding increase in public investment.

To assist the Council in drawing up this progress report, we asked four of our eight subcouncils—Critical Technologies, Public Infrastructure, Trade Policy and Training—to provide their assessment of recent federal initiatives and to make any new recommendations that seemed appropriate. These four Subcouncil reports are appended.

III. Progress So Far

This section will discuss the Administration's major initiatives with competitiveness implications. We start with the ones that are largely on track. In the next section we point out the areas where greater attention is needed.

1. Deficit Reduction

In the Council's 1992 Report to the President and the Congress, we pointed to the large federal deficit as a significant cause of the low national saving and investment rates that in turn are a major cause of the nation's competitiveness and economic problems. The Council recommended that the Federal budget be shifted into surplus in order to make a net contribution to national saving. We noted, however, that while increased saving is necessary for greater investment (unless the money is borrowed from abroad), it is not sufficient. Investment will occur only if there are market opportunities.

The focal point of the Administration's efforts in its first seven months was on developing and winning approval of a five-year deficit reduction plan. The Council endorsed the thrust of the Administration's initiative in our 1993 report. **Budget correction is**

absolutely essential and we are gratified that the program enacted is a good start in this direction. This is a significant accomplishment and should contribute to strengthened American competitiveness.

We are aware that many people continue to question the wisdom of deficit reduction at a time when economic growth is so modest. Therefore, we want to reiterate why the Clinton Administration and the Congress chose the right course. First, the high level of government dissaving contributes to raising interest rates which discourages job-creating private investment. Second, the commitment to reduce the deficit is a factor in the substantial decrease in long-term interest rates. These low rates provide a considerably larger boost to the economy than the "short-term stimulus" that was contemplated in February—and could be reversed if budget correction is threatened. Third, the accretion of budget deficits over the past 20 years has reduced the flexibility of the federal government to use fiscal policy tools. Demonstrating that the federal government can control its budget will restore some ability to utilize fiscal tools. Fourth, the increasing national debt siphons a growing percentage of taxes into paying interest on that debt. This subverts confidence in the government as the public sees less tangible return on each tax dollar.

The Administration is reportedly preparing a new round of spending cuts. The Council supports this effort and intends to review budget recommendations from groups such as the Concord Coalition (Rudman-Tsongas).

2. Education

Investing more in our human resources is absolutely crucial to a competitiveness strategy that aims for higher economic productivity. The Council made a number of specific recommendations on education and training in our 1993 report. Many of these initiatives, such as improving apprenticeship and school-to-work programs, are being pursued by the Administration.

Making institutional improvements in the US public education system may be the single most important pro-competitiveness step that can be taken. The Council offered a set of policy reforms in this area, and the Clinton Administration has adopted a similar approach. The Administration's bill—the "Goals 2000" legislation—would set educational goals, establish mechanisms to certify national standards and new student assessments, and encourage states to adopt standards-based education reform.

This legislation has been reported by both the relevant House and Senate committees. There are some differences between the bills which we hope will be resolved in a manner consistent with the Administration's approach. **The Council believes that clear and challenging content and performance standards, student assessments based on those standards, training for teachers to teach to higher standards and greater accountability for schools and students are essential for improving the performance and equity of the education system.**

3. Technology

Technology policy is a key element in the competitiveness equation for at least three reasons. First, the ability of manufacturers to make constant improvements in products can be a pivotal factor in whether a company remains competitive internationally. Second, new technology empowers workers by increasing their productivity, which should result in higher wages—though achievement of the full benefit requires significant efforts to upgrade workers' skills and to utilize worker-friendly technologies. Third, there is a positive relationship between the commercialization of new technologies and the creation of new jobs.

Several months ago, the Administration announced a new technology policy, including increasing the budget for the Advanced Technology Program to $680 million over five years. The Council strongly supports that initiative. Legislation to improve

the National Institute for Standards and Technology and to promote competitiveness partnerships in the federal labs are moving ahead in both the House and the Senate.

Although the Administration proposed a permanent R&E tax credit, the Omnibus Budget Reconciliation Act of 1993 renews the credit for only three years (including one year retroactively), thus undermining industry's ability to integrate it into long range planning. **We urge the Congress to make a long-term commitment to the research tax credit and to expand it to cover improvements in process as well as product technology.**

There are several areas of technology policy that have not moved ahead as quickly as we would have hoped. The Administration's initial request for $146 million for the Advanced Technology Program was not approved by the Congress and only small increases are being provided for FY94. **The Council reaffirms its earlier recommendation that civilian technology programs by FY97 be increased by at least $4 billion on an annual basis by channelling funding, personnel and facilities to them from previous defense missions.**

Although the Council favors increased investment in critical technology, we believe that a portion of the increase could be offset by cuts in low priority technology programs. The Council notes the possibility of establishing a Laboratory Closing Commission to evaluate whether there is continued need for all 700 current federal laboratories.

In addition, the Council recommends that the Administration seek more private sector expertise in setting technology strategy and evaluating R&D programs such as the Technology Reinvestment Program. The federal government needs to develop better mechanisms for securing private sector input, including situations where experts may have a financial interest in the outcome of some issues. It is currently too difficult for knowledgeable people, active in the private sector, to provide technical assistance to government agencies.

4. Export Promotion

America's huge trade deficits, which have accumulated over $1 trillion over the past decade, are the single clearest indicator of the nation's competitiveness problem. **Trade improvement is particularly critical for the American economy because it can provide new markets that will create high-paying jobs in the short run and spur new private investment to meet the growing demand.** At a time when economic growth is sluggish, expanding sales in overseas markets becomes even more important.

The Council applauds the Administration's pursuit of a "global growth strategy." The Council also recommended in our 1993 report that the Administration "push hard... to open foreign markets to American products," and the Administration has done this both in obtaining a G-7 commitment to restart the Uruguay Round and in working out a new framework for US-Japan economic relations.

The Administration has also moved to invigorate the Trade Promotion Coordinating Committee (TPCC), which recently outlined a new strategy for exports with the goal of increasing exports from the current level of $700 billion to $1 trillion by the end of the century. Specifically, the TPCC recommends liberalizing certain export controls which affect some $35 billion of high technology exports. The TPCC report also calls for the creation of one-stop shops to consolidate the current maze of federal export promotion services and a unified export promotion budget. Finally, the TPCC report recommends steps to attract more financial institutions into export financing and proposes increasing per-project caps on financing by the Overseas Private Investment Corporation from the current $50 million to as much as $200 million. Many of these points were recommended by the Council in March.

An effort is needed to reduce domestic export disincentives that block tens of billions of dollars of foreign sales by American companies.[4] It is particularly important to limit our present unilateral export controls; only multilateral controls have proven to be effective against a target country. In addition, the administration of export controls should be consolidated into one federal agency under the supervision of the National Economic Council in conjunction with the National Security Council.

There are several areas, however, in which the Administration's efforts fall short of the competitiveness agenda favored by the Council. **An agreement with Japan (and perhaps the entire G-7) is needed to lock in the strong exchange rate for the yen that has developed over the past six months.** The stronger yen will promote a sharp reduction in Japan's huge trade surplus over the next two to three years and improve American competitiveness in world markets. Renewed weakening of the yen would reverse these gains, however, and the Administration should therefore seek to lock in the current level through adopting currency reference ranges (as recommended by the Council in its March 1993 report). Attention is also needed to the problem of the increasing price of the dollar relative to certain European currencies.

The Heads of State communique issued at the G-7 Summit in Tokyo indicates that Japan agreed to stimulate demand-led growth "as necessary" (without any commitments to specific targets). Following Japan's recent reductions in interest rates, the US government should encourage Japan to further stimulate demand with fiscal measures. Germany should be urged to build on its recent interest rate reductions to reverse the negative growth and double digit unemployment that has spread throughout Europe.

A sharp increase is needed in the quality and quantity of US export credit programs. Export finance is often crucial in determining the outcome of contracts, particularly in the fast-growing markets of the developing world. The Export-Import Bank's annual program level should be increased from $15 to 20 billion to support more intensive export efforts.[5] Additional increases may be needed in future years.

Trade measures cannot make America more competitive but they can boost our *opportunity* for competitiveness by increasing the size of world markets. The ability of American workers and firms to compete successfully in world markets depends to a large extent on whether there is adequate US investment in human resources, technology and physical capital. That is another reason why the US government needs to have a comprehensive competitiveness strategy agenda.

5. Reinventing Government

An effective and efficient government is essential for achieving greater US competitiveness. This has always been the case. But the need is more urgent now at a time of tight federal budgets, difficult domestic problems, and increasing economic challenges from abroad. The members of the Competitiveness Policy Council have examined the recent *Report of the National Performance Review* and believe that it makes an excellent start at improving the management of what is probably the most complicated enterprise in the world.

The Council supports many of the Vice President's recommendations, some of which have already been considered by our Subcouncils. It is very important that unnecessary federal spending be cut so that these funds can be reallocated to needed investment initiatives. Getting more bang for the taxpayer's buck may be one of the most pro-competitiveness actions a government can take.

As the Report notes, there have been numerous efforts in the past to reform and reorganize the federal government. It is true that many of these past efforts proved disappointing. Nevertheless, we have high

hopes for the Clinton Administration's initiatives because of the fresh approach that it takes. In focusing on improving the productivity of federal employees, on eliminating cumbersome procurement regulations, on adapting new technology, and on developing a "customer" orientation, **Vice President Gore's package may be the most significant government reform effort in several decades.**

In endorsing this initiative, we do not necessarily agree with every recommendation or with the sufficiency of the reform package. But we do believe that many of the reforms are significant and well considered and that, as a package, they go in the proper direction. Since so many of the important public investments are largely delivered by government (e.g., roads and primary education), improving the government delivery system can make a significant contribution to competitiveness.

6. Health Care Reform

The Council supports the Administration's efforts at seeking a fundamental reform of the US health care system. We are pleased that the Administration and the Congress will seek to keep the process a bipartisan one. The Council is now studying the competitiveness impact of the Administration's initiatives and plans to provide an analysis thereof in its role as "competitiveness ombudsman."

IV. Where More Action Is Needed

The Council's competitiveness strategy emphasizes the need for greater public investment in infrastructure, technology, training and education. These programs have a substantial long-run payoff in raising the productivity of the economy and in fostering new private investment. We are pleased that the Administration is pursuing many of these initiatives, but we are disappointed that the investment issue has become submerged in recent months. There were a number of pro-competitive elements in the Administration's "stimulus" package—$3 billion for highway improvements, $250 million for airport improvements, $146 million for the Advanced Technology Program, and $47 million for cooperative R&D agreements at the National Labs. But after the Congress failed to adopt the Administration's budget supplemental, these investments seem to have dropped from sight.

The Council makes the following specific recommendations for improving the quality and quantity of public investment:

1. Infrastructure

As the Council noted in its 1993 report, "there is a widespread consensus that infrastructure investment and economic growth are intertwined, and that well-selected public investments in infrastructure can play an important role in furthering economic growth."[6] Indeed, we see better infrastructure as having a multiple payoff in decreasing manufacturing costs, in spurring related private investment, and in facilitating exports.

The Council supported the Administration's supplemental request for increased transportation investment and regrets that this portion of the President's initial budget package was not enacted. We urge the Administration to seek the authorized level of funding for surface transportation for FY95 and beyond.

We are not advocating a massive program to pave America. Rather, **we favor greater efforts to rehabilitate existing facilities and to upgrade the quality of roadbuilding to world-class standards so that roads will last longer.** It is this *sustained* effort to improve infrastructure that will have a high payoff over the long-run. The Council also supports a strong program in high speed rail, Mag-lev, and intelligent vehicle highway systems.

The Council supports increasing the level of infrastructure investment by about $3 billion, to be financed through increasing the gasoline tax.[7]

The retail price of gasoline, adjusted for inflation, is now at a historical low, well below the level that prevailed *before* the first "oil shock" of 1973. The gasoline tax, long a vehicle for funding these programs, should not be treated as general revenue. The American people are prepared to pay higher taxes when necessary as long as they see the benefits of their investment.

As noted in our 1993 report, inappropriate transportation "demonstration" projects can discredit federal infrastructure efforts.[8] Many of these projects are not demonstrations in the normal sense. **The Council urges a moratorium on future site-specific highway demonstration projects pending the establishment of a process to evaluate the merit of these "demonstrations."**

The Council endorses the recommendations to restructure FAA's Air Traffic Control System into a government-owned corporation within the Department of Transportation. Our Subcouncil on Public Infrastructure considered this matter extensively last year and called for a "process" to evaluate organizational reforms. The National Airline Commission did an excellent job of considering this problem and we endorse its recommendation for restructuring the FAA.[9]

2. Dislocated Workers

The United States needs a comprehensive program to help those workers who are adversely affected by policies which aim to benefit the economy as a whole. US labor markets are under enormous pressure with defense conversion, changes in trade, technological and other structural changes. Government labor market programs serve as one vehicle for helping reduce the adjustment burden borne by these workers. A comprehensive program would combine various aspects of existing programs to provide adequate benefits to all workers in need. Benefits should include job search assistance, skills assessment, counseling, referral services, payment for training programs and extended income and benefit payments through the training period.

Realizing this need, the Administration has requested approximately $1.2 billion in additional funds for dislocated worker assistance in FY 1994. While this level of funding is greater than that devoted to dislocated workers during the 1980s, **the Administration has not yet offered a detailed proposal and this should be done quickly. The Council believes that any serious adjustment program must include adequate income maintenance payments and have a secure funding source, so that all workers in need will receive adequate benefits.**

The Council has discussed NAFTA but has not taken a position on the pending Congressional action. We reiterate the point made in our 1993 report that while NAFTA would be expected to lead to increased exports to Mexico, NAFTA would also add to the need for improvements in worker adjustment

3. Focusing the Debate

Now that the budget package has been enacted, the Council urges that the public debate be refocused on the competitiveness agenda. The National Economic Council should play a central role in the budget process, assuring that decisions about allocating scarce investment dollars are made strategically at the highest levels of the government.

We believe strongly that the American people will support a genuine government investment program so long as it is complementary to budget discipline. This means that greater investment must be fully paid for. **Reducing the federal deficit and increasing public investment must go hand-in-hand. The view that we must choose one or the other is a feature of Washington that needs to change.**

Under current budget rules, increasing federal investment will necessitate cutting other programs that impede (or fail to contribute as much

to) American competitiveness. We believe that a number of existing programs have much less priority than those we recommend, and that such a trade-off is therefore both feasible and desirable. Given the difficulty of making these cuts, however, the Congress may want to consider new mechanisms to assist it.

In our view, the Congressional experiment in creating the Base Closing Commission was a success. It is worth considering whether some features of that approach—the "independent" bipartisan commission and the non-amendable package—could be applied to finding spending reductions in other programs. The Council itself would be willing to suggest spending cuts if requested to do so by the Administration or the Congress.

Our policymakers must make a clearer case for how the right kind of public investment now can lead to much higher economic growth in the future. It is also important to see the ways in which pro-competitive policies dovetail. For example, trade liberalization creates opportunities which can be seized to maximum effect over time only with the benefits of public investment in worker training and technology. Likewise, technological change can cause dislocation which can be alleviated by export-induced job creation and employee retraining. These linkages make it even more important for the federal government to maintain a balanced and comprehensive investment agenda.

We urge OMB to propose, and the Congress to institute, an "Investment Budget." **We would like to see a process whereby the Administration separately considers the appropriate split between investment and consumption and formulates a multi-year plan.**[10] The Congress should vote on the adequacy of the investment component as part of the annual budget resolution. We would hope that such a process would mitigate the bias in the budget process against programs that have a delayed, though high-yield, payoff.[11]

The Investment Budget that we propose would not make it easier to "deficit-spend" for true investment programs.[12] It removes no budget discipline for investment. Its purpose is to educate the public and assure that policymakers consider the trade-off between investment and consumption in allocating scarce budget resources. New investment would have to be paid for rather than added to the deficit.

It is also important to deal with the widespread public cynicism about government "investment." **Our leaders must articulate why investment is different than everyday operational spending.** They should develop new decision-making mechanisms to dispel the widespread presumption that much infrastructure, technology and scientific spending is allocated for parochial political purposes ("pork"). The Congress should explore ways to maintain the integrity of merit-based selection systems for determining which programs to fund.

4. Boosting Private Investment

As the Council explained in its 1993 report, increased and smarter private investment in plant and equipment, R&D, and worker training is essential to raise productivity, create jobs and boost incomes. Without additional increases in investment, even our current standard of living will not be sustainable. Thus, we are heartened by recent data showing an increase in corporate expenditures for worker training.

One of our main recommendations, which arose from our Manufacturing Subcouncil, was for an incremental and permanent "equipment tax credit." We believe that such a credit would both increase the level of private investment and increase the payoff, in terms of the national economy, from each dollar invested. Although the Administration sought a permanent investment tax credit (ITC) for small businesses, its credit for large companies was to run only for two years. The entire proposal attracted little support, largely because of the temporary nature of the credit, and died in the House Ways and Means Committee.

In assessing the desirability of tax expenditures, it should be

recognized that the popularity of a credit among business leaders may not be the best measure of its efficacy. When members of the Council publicly advocated a permanent equipment tax credit for all firms, including in testimony before the Senate Finance Committee, we were told that "Business doesn't want the ITC" and "they would prefer a lower corporate tax rate." These views carried the day.

The Council did not propose an equipment tax credit because it would be popular in the business community. We did so because we believe that such an incentive would channel more corporate spending into high-payoff investment. **Our purpose was to use tax incentives *to change* existing corporate behavior and encourage job-creating investment. Therefore, we were not surprised when corporations showed limited enthusiasm for the proposal.** What did surprise us, however, was that this lack of enthusiasm was so dispositive in the decision to drop the whole idea.

The Council remains convinced that lowering the hurdle rate for new investment would be conducive to increasing productive investment by American industry. If an equipment tax credit is not politically possible at this time, we urge the Administration to consider alternative approaches to the same end.[13] One option would be to test a five-year investment tax credit for small business only. A small amount of tax incentive might leverage a great deal of private investment by employers. Another option, which we recommend in our latest report, is to change depreciation allowances so that the tax life of the equipment is consistent with its competitive life. We also recommend reinstating the R&E tax credit permanently (as discussed above).

There is also an immediate need for new investment in the continuous training of active workers. This issue was considered in several of our subcouncils last year and will be taken up again in our new Subcouncil studying High Performance Workplaces.

V. Conclusion

The Council is pleased that a significant portion of our competitiveness strategy has been put into place by the new Administration and the Congress. But a great deal remains to be done. Now that the Congress and the Administration have concluded action on the five-year deficit reduction plan, **we urge that the Administration give high priority to articulating a multi-year competitiveness agenda.** We believe that the public will support such long-term investment, if government officials do a better job explaining how spending for "investment" will create jobs and improve our standard of living in the long run. The Council stands ready to assist in this effort in our statutory role as a national "forum" for championing competitiveness.

There is a tendency for public officials and the media to perceive competitiveness as "one more issue" that must compete for attention with other issues like health care reform or reinvention of government. We do not concur with that "either-or" view. Rather, **we believe that difficult policy reforms, such as health care, will stand a better chance of being enacted if the competitiveness implication of continued inaction were better recognized by the public.** It is for these reasons that we think competitiveness should be an underlying principle both in crafting better programs and in selling them to the public.

Although the "competitiveness agenda" seems to have dropped from sight in recent months, we believe that the time is right for the Administration to get back to such basics. The federal government needs a comprehensive competitiveness strategy to guide its efforts to create jobs and boost America's standard of living. The Council has offered such a strategy and we stand ready to assist the Administration and the Congress in attaining urgently needed change.

Notes

1 The Council emphasized that soaring health care costs were one of the America's six most important competitiveness problems in *Building a Competitive America*, March 1992, pp. 24-25, 31-32. Given the large number of health care reform plans already in existence or in preparation, the Council decided not to initiate its own plan. We have recently created a Subcouncil to analyze the competitiveness implications of the President's new plan and other reform proposals that come before Congress.

2 Competitiveness Policy Council, *Building A Competitive America*, (Washington, DC: Government Printing Office), March 1992, p. 1.

3 Competitiveness Policy Council, *A Competitiveness Strategy for America*, (Washington, DC: Government Printing Office), March 1993.

4 A recent study found that exports foregone by US export disincentives may range as high as $40 billion annually. See J. David Richardson, *Sizing Up U.S. Export Disincentives*, (Washington, DC: Institute for International Economics), 1993.

5 The Clinton Administration orginally proposed reducing Eximbank's FY94 funding level by $34 million. Instead, the Congress added $250 million to promote exports to the former Soviet Union, bringing the Bank's program level to over $18 billion.

6 Competitiveness Policy Council, *A Competitiveness Strategy for America*, (Washington, DC: Government Printing Office), March 1993, p. 31.

7 Council member Bruce Scott dissents from this recommendation. He favors a much larger gas tax increase but does not agree that it should be devoted to infrastructure.

8 The Council notes that little of the criticism of the President's stimulus package was aimed at transportation programs. The main target was the $2.5 billion for community development block grants.

9 The National Commission to Ensure A Strong Competitive Airline Industry, *Change, Challenge and Competition*, (Washington, DC: Government Printing Office), August 1993, pp. 8-9. This Commission was chaired by Governor Baliles, who also chairs the Council's Public Infrastructure Subcouncil.

10 Present law already requires a report on public civilian capital investment. See 31 USC 1105(e). It has been several years since this report was made in full.

11 The FY1994 *Budget of the United States Government* (p. 71) includes a chapter on federal investment outlays, but this information is apparently not used in decision-making. The Budget also includes a listing of newly-proposed "investment initiatives" (p. A1203). Not all of these programs are clearly investment.

12 Once the federal budget gets under control, it would be appropriate to consider a separate budget discipline for investment in order to allow a reactivation of fiscal policy. Even the fiscally prudent Japanese use off-budget bonds for construction projects.

13 Council member John J. Murphy opposes any effort to revive the Investment Tax Credit.

Subcouncil Reports

I. Implementing Technology Policy for a Competitive America
(Critical Technologies Subcouncil Report)

II. Restoring Public Confidence in Infrastructure
(Public Infrastructure Subcouncil Report)

III. Forging A Strong Trade Policy
(Trade Policy Subcouncil Report)

IV. Investing in Our Workforce
(Training Subcouncil Report)

IMPLEMENTING TECHNOLOGY POLICY FOR A COMPETITIVE AMERICA:

Status Report of the Critical Technologies Subcouncil to the Competitiveness Policy Council

Erich Bloch, Chairman
David W. Cheney, Staff Director

August 1993

Critical Technologies Subcouncil
Competitiveness Policy Council

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I. Introduction

In the summer and fall of 1992, the Subcouncil on Critical Technologies developed a comprehensive set of recommendations to improve the contribution of technology to the nation's economic welfare. These recommendations, contained in the Subcouncil's report *Technology Policy for a Competitive America*, served as the basis for technology recommendations in the full Competitiveness Policy Council's second annual report to the President. This report summarizes the activity to date in implementing these recommendations and highlights the next steps needed to ensure continued progress.

Our recommendations sought to refocus Federal science and technology policy on the new challenge of international economic competition, replacing the traditionally predominant focus on the challenge of military competition with the Soviet Union. They also address our nation's central technology problem: the need to apply technology effectively to new products that can be conceived, developed and manufactured in the U.S., thereby improving the nation's standard of living. To this end we must improve the use of the nation's substantial science and technology resources and provide a climate that fosters investment in research and development, education, and small companies. In summary, our recommendations were to:

1. Increase National Investment in Civilian and Dual-Use R&D

- Equalize the allocation of Federal R&D funds between defense and civilian R&D and give priority to programs with the strongest links to industry (e.g. programs where industry shares in the planning, conduct, or funding of the R&D). Government R&D institutions, especially Federal labs, should also be made to work more closely with industry.
- Provide tax incentives to encourage increased private sector investment in R&D and equipment.

2. Promote Commercialization of Strategic Technology

- Authorize ARPA, ATP and NIH to purchase equity or extend loans/loan guarantees to help support commercialization of promising technologies developed through their R&D contracts.
- Revise Federal procurement laws and regulations to provide incentives for technology investment and development by stimulating markets for innovative technologies.

3. Create a World Class Technology Base

- Improve the infrastructure for technology utilization by helping small manufacturers modernize, by improving education and training, and by improving the nation's information infrastructure.

4. Organize U.S. Institutions for Results

- Establish a focal point for private sector input to the science and technology policy making process, particularly at the White House level, and improve mechanisms to manage technology policy and coordinate it with other policies, such as tax, regulatory, trade, and environmental policies.

It is important to restate that the end goal of the subcouncil recommendations is to improve America's economic performance. There is no doubt that in the long run, our nation's ability to have ample, well-paying jobs and a high standard of living depends on our

ability to develop and deploy technology. Technology is key to creating the new industries that generate new jobs. It also helps existing industries improve their productivity, enabling them to preserve jobs in the United States that would otherwise go to foreign factories.

II. Implementation Status

Progress in Some Areas

We are encouraged to see that many of the recommendations in the Clinton Administration's technology plan, *Technology for America's Economic Growth: A New Direction to Build Economic Strength*, released on February 22, coincide with recommendations endorsed by the Subcouncil. Significant progress has already been made in several areas. Congress approved, and the President signed into law on June 10th, legislation that will modify the National Cooperative Research Act to give joint production ventures the same antitrust protection as joint R&D ventures. This will allow companies to work together to increase their competitiveness in new areas, such as manufacturing in capital intensive technologies where it is difficult for companies to go it alone.

The Administration has also shown a clear intention to act in areas where it alone can implement the recommendations. For example, the Department of Defense is seeking to revise its procurement regulations in ways that will both save money and ultimately stimulate commercial innovation. The Administration has also sent strong signals to industry, the Federal laboratories and the Congress that civilian/dual-use technology and collaboration with industry will be priorities for the future. The impact that this commitment is beginning to have is evident in many areas. The culture at the Federal labs is becoming more responsive to industry needs and spawning increased partnerships with industry, and new legislation has been introduced that reallocates budgets of the Federal labs to industry/government partnerships and increases funding for industry-led programs. We urge the Administration and the Congress to continue the progress that has been made in these areas.

Lack of Progress in Other Areas

In other areas, however, implementation has not progressed. For example, the Administration's economic stimulus plan, which in reality was a mix of stimulus and longer term investment proposals, was not enacted by Congress. This important package included strong increases for several programs that are vital to competitiveness in technology, such as NIST's Advanced Technology Program. The demise of the stimulus package can be partly attributed to polarization of the political debate in the Congress, which has centered around the need for deficit reduction. This is an important goal, but the narrow focus on spending cuts disregards the equally vital need for investments in areas that will improve industry's capability to commercialize technology and create jobs. As a result of this climate, even the attempt to make the R&D tax credit permanent -- an action that has had broad bipartisan support for nearly a decade -- has been put at risk.

Reasons for Lag

Overall, implementation of the President's -- and the Council's -- technology program appears to have slowed for several reasons:

- Lack of a clear articulation of the rationale for the program, and lack of a detailed long-term plan for implementation. The Administration's technology plan contained a long list of commendable recommendations, but in many cases, the specifics, justification and prioritization necessary for effective

implementation have not been articulated.

- Competing interests have diverted attention away from continued emphasis on implementation. For example, once the stimulus package failed in Congress, there was little focus within the Administration to address anew strategic issues and problems.
- The tight budget climate, and the fact that the Administration's budget request was $5.7 billion more than allowed by the budget agreement for discretionary spending, forced the Congress to choose between stimulus and investment packages and other discretionary spending requests.
- Inappropriate characterization of technology programs as "pork" rather than investment.
- The tendency of both the private sector and the political process to give less support to long-term investments programs compared to programs with more immediate impact. In some cases, the private sector has not made technology programs, which primarily have long-term benefits, it highest priority.

The Subcouncil recognizes that the Administration has only had six months to enact a long list of technology policy recommendations, and over time, a number of the programs may be eventually implemented. Regardless, we are concerned about the slow pace and the dimmed prospects for many key technology programs. For this reason we are respectfully re-emphasizing the importance of our recommendations and increasing our efforts to see them implemented.

III. Priority Actions

The following are areas which require immediate action:

Balance defense and civilian R&D spending by 1995. The Subcouncil, realizing the tight budget and need for deficit reduction, has not advocated major new increases for R&D. Rather we have proposed balancing defense and civilian R&D spending by 1995. This will enable a shift of nearly $8 billion from defense development to high priority civilian and dual-use applied research and development programs. Considerable funding for dual-use R&D has already occurred in the Department of Defense, but not all civilian technology efforts can be effectively handled this way. A significant portion of the $8 billion should be shifted to programs within civilian agencies. The Administration adopted this recommendation as a goal for 1998, which is moving in the right direction. It has not, however, followed up with a detailed plan. *The FY 1995 budget submission to Congress, due in a few months, is the appropriate opportunity to begin emphasizing and implementing this shift.*

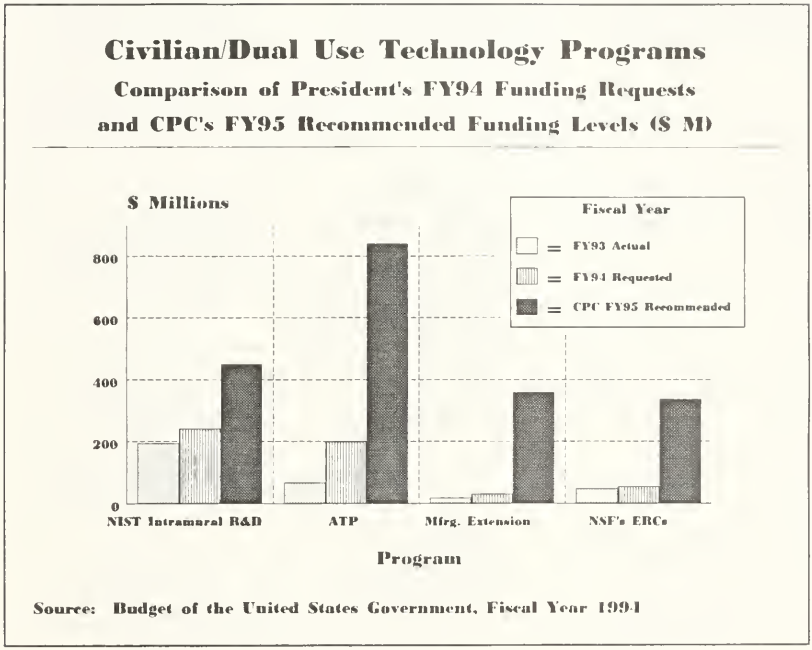
The Administration's Technology Reinvestment Project, in which five agencies are cooperating to use nearly $500 million in defense funds for dual-use technology programs, is a positive action in this area. The enormous private sector response to the program, with several thousand proposals (and commitments of billions of dollars of private sector, state and local resources in cost sharing), shows the pressing need for such a program. We are concerned, however, that the process for reviewing the proposals does not build in more private sector expertise to ensure that the proposals selected for funding are high quality and reflect industry priorities. The Administration has also not made clear what TRP's role will be, if any, in future years. If it is intended to be a longer term program, the Administration should specify its goals, plans and estimated funding levels, and ensure more intense and systematic participation from the private sector.

Expand programs with strong linkages to industry. The Administration has proposed

large increases in programs with close links to industry and markets, such as the Advanced Technology Program and the Manufacturing Technology Centers at the National Institute of Standards and Technology, and the National Science Foundation's Engineering Research Centers (see figure 1). It has also supported strengthening the linkages between other Federal R&D activities, especially those conducted at Federal laboratories, and those of the private sector. The proposed increases for these high priority programs have had mixed success in Congress, and these programs are not being built up as fast as is necessary.

Congress needs to strengthen its commitment to long-term economic growth by increasing support for NIST, NSF, NIH, DOE technology partnerships, and ARPA dual-use

Figure 1



programs. The Administration needs to continually support these programs in Congress and reemphasize them in its FY1995 budget. Legislation that will increase funding for key technology programs and help strengthen the linkages between the labs and industry is moving in both houses (see Table 1). *This legislation should be supported by the Administration and passed by the Congress quickly.*

Improve technology policy-making and management. Our recommendations put great emphasis on creating better mechanisms for private sector input to government policy making in technology. In particular, we stress the need for a permanent set of advisory committees that can deal with the many technology policy issues the country faces and can be a partner with the administration in formulating strategies and budgets.

We also support strengthening the Federal Council on Science and Technology (FCCSET) and using it to coordinate and manage interagency technology initiatives, such as those in biotechnology, high performance computing and communication, advanced materials and processing, and manufacturing, and to develop new initiatives, such as in electronics. FCCSET also needs to be modified to facilitate private sector input, specifically by

Table 1

Key Technology Legislation

Bill		Primary Goals	Status
H.R.820 / S.4	National Competitiveness Acts	• Increase Technology Administration funding • Increase NIST Funding (Intramural R&D, ATP, Manufacturing Extension, facilities) • Establish technology financing programs (venture capital, civilian techoology loans)	The House passed H.R.820 on 5/19/93 The Senate Commerce Committee passed S 4 on 5/25/93 and reported the bill to the full Senate for its consideration; no further action to date
H.R.1432 / S.473	DOE Laboratory Technology Act / DOE Nat'l Competitiveness Partnership Act	• Reallocate 10-20% of DOE/NASA lab budgets to partnerships with industry • Improve processing of CRADAs	H.R.1432 was referred to the House Subcommittee on Energy, the Energy Subcommittee and the House Committee on Space, Science and Technology are currently holding hearings The Senate Energy Committee passed S.473 early June and reported the bill to the full Senate for its consideratioo, no further action to date
H.R.1757 / S.4, Title 6	National Informatioo Iofrastructure Acts	• Develop high performance computing and high speed networking applications for healthcare, education, manufacturing, libraries, etc	The House passed H.R.1757 on 7/26/93 The Senate Commerce Committee passed Title 6 along with the rest of S.4 on 5/25/93, the bill was reported to the full Senate for consideration; no further action to date

developing a means for the government to receive input from the people that have the necessary knowledge, even if they have a personal interest in the outcome of some issues. While this is a sensitive issue, both Congress and the Administration have made it almost impossible for knowledgeable people, active in the private sector, to participate effectively in government affairs. The Administration has been non-committal on this issue and has tended to rely on informal communication. Informal channels of communication, while important, may not survive the changes in personnel that inevitably will occur. *The Administration needs to move quickly to improve private sector input to technology policy making and to strengthen the planning and management of interagency programs. This can be accomplished through a properly defined mechanism that depends on private sector input as a major source of advice and a strengthened FCCSET.*

Make the R&D tax credit permanent. Although the Administration supported this recommendation and the House tax bill adopted it, the Senate and the budget reconciliation conference report once again made the credit temporary. This will prevent industry from using the credit in long term planning and, as a result, undermine its effectiveness. Both Republican and Democratic presidents are on record as strongly favoring a permanent R&D tax credit. As the least politically controversial of the recommendations to strengthen industrial competitiveness in the U.S., this action is an important litmus test of government's commitment to addressing the nation's long term economic ills. *The Administration and Congress should cooperate to make the R&D tax credit permanent.*

IV. Conclusions

The above issues and recommendations need to be addressed quickly and effectively by the Administration and the Congress. The key opportunities to effect change in technology policy in a major way are through the FY 1995 and FY 1996 budgets. As a result, the Administration needs to devote immediate and continued effort to develop a detailed plan for implementation of its technology plan that includes justification, articulation and prioritization of recommendations, and development of milestones and evaluation criteria.

The Congress also needs to do its part to put the country's technology policy on sound footing, and through its action, acknowledge the critical role of technology in meeting the nation's economic challenge. In order to accomplish this without major increases in R&D, the Congress will have to work together to set national priorities and shift funds to areas important to competitiveness of the private sector.

RESTORING PUBLIC CONFIDENCE IN INFRASTRUCTURE INVESTMENT:

Interim Report of the Public Infrastructure Subcouncil to the Competitiveness Policy Council

Gerald L. Baliles, Chairman
Gilah Langner, Staff Director

August 1993

Public Infrastructure Subcouncil
Competitiveness Policy Council

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I. Introduction

The Public Infrastructure Subcouncil of the Competitiveness Policy Council, charged with developing recommendations for enhancing US international competitiveness by improving effectiveness and efficiency in the movement of people, goods, and information, met on June 17, 1993 to revisit its recommendations in light of recent developments.[1] At that meeting the Subcouncil reaffirmed its earlier position that investment in infrastructure is critical for enhancing US productivity growth and for sustaining the long-term competitiveness of the national economy.

During the 1992 Presidential campaign, investing in infrastructure was presented as a positive step toward longer-term economic development and prosperity. Early this year, however, the debate over the proper level and focus of infrastructure investment took an unfortunate turn. Although the transportation sections of the President's stimulus package were not the lightning rod for criticism, one result of the debate over the package was that virtually *all* infrastructure investment came to be identified in the popular press and in the public's mind with swimming pools and "pork."

This type of equation does no service to the country. A nation that fails to maintain its infrastructure essentially places itself on an economic starvation diet. Characterizing infrastructure investment as a jobs program or as a short-cut to economic stimulus is neither helpful nor accurate. Moreover, it does a serious disservice to our nation's long-term economic prospects.

II. Recommendations

The Subcouncil makes the following recommendations on infrastructure investment levels and funding for the FY 1994 budget cycle:

■ ***Fully Funding ISTEA.*** The Subcouncil recommends an aggressive program to preserve and improve transportation infrastructure. We fully support the President's FY 1994 budget proposal calling for appropriating full authorization levels for highways under ISTEA, and moving forward with new transportation technologies including high speed ground transportation and intelligent vehicle highway systems (IVHS). For transit, the budget calls for $4.6 billion in spending a 21 percent increase over the enacted level for FY 1993 but still a half billion under the authorized ISTEA level of $5.1 billion. The Subcouncil believes that full ISTEA funding is needed for highways and transit, both to maintain the balance of highway versus transit spending, and to address pressing needs for modernization and rebuilding of major existing transit systems.

Most members of the Subcouncil believe that additional funding for preserving and upgrading existing infrastructure is long overdue. Fully funding ISTEA is a necessary first step, but it is still not enough. Congestion on the highways and at airports is costing the nation billions of dollars each year; missing connections across modes of transport impede trade; inadequate and deteriorating transit facilities prevent people from getting jobs and businesses from meeting their hiring needs. All of these are competitiveness issues.

[1] Due to his responsibilities as Chairman of the President's National Commission to Ensure a Strong Competitive Airline Industry, Governor Gerald L. Baliles, the Chairman of the Subcouncil, was unable to chair this meeting or participate in the preparation of this statement. Thomas M. Downs, Commissioner of the NJ Department of Transportation chaired the meeting. The Subcouncil's complete recommendations are presented in "Investing in Our Future: Report of the Public Infrastructure Subcouncil" in *Reports of the Subcouncils*, Competitiveness Policy Council, Washington, D.C., March 1993.

■ ***Funding Mechanism.*** An adequate, stable funding mechanism remains an absolute necessity for a productive infrastructure sector. Traditionally the gas tax has been dedicated to infrastructure improvements, and this has contributed to its credibility as a user fee. In recent years this credibility has been eroded, due in part to the diversion of 2.5 cents of the gas tax away from infrastructure spending. According to a recent GAO report, the Highway Trust Fund is barely sufficient to support full funding of ISTEA after FY 1995. Moreover, current revenues are inadequate to finance any significant increase in infrastructure spending beyond ISTEA levels.

There is growing interest in dedicating part of the gas tax to general revenue as opposed to earmarking it for improving the nation's infrastructure. The Subcouncil opposes any efforts to divert the gas tax for general revenue. The Senate version of the budget included a 4.3 cent increase in the gas tax, earmarked for the highway trust fund. However, increasing the gas tax without increasing infrastructure spending would only build up an unobligated balance in the trust fund, further eroding public trust. The Subcouncil encourages Congress to develop a forward looking infrastructure plan which includes a strategy for future spending. The American people are prepared to pay higher taxes when necessary as long as they see the benefits of their investment. The Subcouncil calls on Congress to "put the trust back in the trust fund" and preserve the gas tax as a means of financing infrastructure.

■ ***Demonstration Projects.*** The public is understandably confused by conflicting images of infrastructure investment, which is sometimes characterized as a productive economic investment and other times is criticized as pork. Even worthy demonstration projects in transportation become tarred with the brush of "pork" and that denigrating attitude then spreads to all transportation projects. The Subcouncil believes this problem must be addressed directly. Beginning with the current (FY 1994) authorization and appropriations process, the Subcouncil recommends that Congress impose on itself a three-year moratorium on new transportation demonstration projects (including water demonstration projects by the Corps of Engineers, highway and transit demonstrations under ISTEA, aviation demonstration projects, etc.). During this period, Congress should work to improve the process by which infrastructure projects are approved, exploring the appropriate state and federal roles, and refining a set of evaluation criteria to apply to future projects.

III. Making the Case for Infrastructure Investment

The difficulties in passing the President's economic stimulus package and FY 1994 budget and the continuing debate over energy and transportation taxes cannot be dismissed as failures of rhetoric. They point to a diminishing understanding of the need to invest in infrastructure, an unwillingness to pay increased taxes that are not directly linked to results, and a popular disenchantment with "business as usual" in infrastructure. All of these problems sap public confidence in the decision-making process for infrastructure investment. Below we discuss these issues and make recommendations for restoring public confidence in infrastructure investment.

In our report earlier this year, we said that the nation must invest in preserving its infrastructure, and that these investments should be paid for directly with dedicated taxes. In the

current budget debate, the view seems to be expressed that federal infrastructure investment is not particularly necessary, and that any such investments at the federal level would likely be paid for by increasing the deficit. Let us examine each of these two points more closely:

1. Why invest in preserving our infrastructure?

Maintaining a viable infrastructure is essential for any region of the country and for the country as a whole to retain current levels of business development, attract new business, and sustain its standard of living. Congested and deteriorated highways, broken water mains, inadequate sewage treatment, air traffic delays, inadequate links from truck to rail or rail to marine terminals, reduced bus and rail service all of these deficiencies may be the facts of modern-day life, but they also reduce productivity, drive up the cost of goods and services, and reduce peoples' access to employment. The real issue is not just fixing potholes; it is competitiveness. Well-selected public investments in infrastructure can play an important role in furthering economic growth and can develop US industries into world-class leaders on the cutting edge of international competition.

Recommendation: The Subcouncil calls upon the President and Administration to make clear the basis for infrastructure investments. The public can and will understand the difference between spending for the short-run and investment for the long-run if the distinctions are clearly drawn and a common sense argument made: the primary goal of long-term investments is to produce long-term benefits to the economy, in addition to creating jobs in the short-run; their overriding purpose is to improve conditions for future generations. Long-term investment should not be pitted against deficit reduction, in fact, long-term capital investment can actually lead to deficit reduction; it is this investment that what will ultimately make possible sustained growth, improved productivity, and a strengthened private sector.

2. Paying for infrastructure investment separately from other spending.

There are several reasons why this is important. First, taxpayers are generally more willing to pay additional taxes when there is a direct link between the tax and the use of the funds. This increases peoples' trust that the money collected for a particular purpose will in fact be dedicated to that purpose. Of course, not all uses of funds are the same; some monies are spent on immediate expenses; other investments produce payoffs in the future. Most households and businesses understand the difference between short-run spending and long-run investment as it applies in their own economic situations: families set up separate bank accounts for their children's college education; businesses take out loans to pay for new machinery that will raise productivity and ensure a rising stream of income into the future.

Yet the difference between short-run spending and long-run investment is often ignored at the federal level. One reason is the way in which the federal government treats operating expenses and capital investments in its budgeting and decision-making processes. Currently, operating expenses of the federal government are mixed together in the budget with investments that add to future output. Valuing all uses of money with a current dollar, one-year perspective is bound to lead to unwise uses of tax dollars; it almost guarantees that capital needs will be sacrificed for short term cash flow. One remedy for this problem might be a capital budget for the federal government. We should be mindful that in this current situation of large budget deficits there will be an almost-irresistible temptation to classify all expenditures as investments. The capital budget idea should be

pursued and Congress should develop ways to avoid this temptation.

Recommendation: For the present time, the Subcouncil recommends that the Office of Management and Budget prepare an annual investment budget, which would give Congress a clear breakout of the budget in terms of investment and operating expenses. This investment budget should be separately considered and voted on by Congress. We are not advocating any greater deficit financing for the investment budget than for the operating budget, only that the Executive Branch and the Congress explicitly consider investment aggregates.

IV. Other Actions to Restore Public Confidence

Strategic Planning. Investment in infrastructure in the absence of a compelling infrastructure strategy surely undermines public confidence in the results. Moreover, the time has passed when public works could be undertaken on a project or strictly modal basis without regard to the larger needs of the community and region, and without regard to patterns of transport and trade across all modalities.

The Subcouncil is encouraged that the Department of Transportation (DOT) appears to be taking steps to strengthen its Office of Intermodalism and to consider transportation corridors with broad national interest. The Subcouncil again calls on DOT to prepare a national intermodal strategy to guide the development of transportation policy from a strategic perspective of competitiveness. DOT should bring in the business community as well as local governments and consumer and environmental groups to design an intermodal "map."

The Subcouncil also encourages states to develop comprehensive, up-to-date infrastructure policies and plans that will allow for rational investment and yield economic benefits. The Subcouncil also urges the Department of Transportation and Congress to place their deliberations on the National Highway System in the larger context of a National Transportation System, giving needed attention to the role of urban rail transit and intermodal networks for both freight and passenger traffic.

Investment Criteria. New projects using public capital must be evaluated with a rigor and clear-headedness that is often more commonly found in the private financial markets. Suggestions have been made by transportation leaders in Congress to address the problem in a more rational, systematic way. The Subcouncil encourages the National Economic Council and the Department of Transportation to move forward in a broader attempt to develop evaluation criteria for infrastructure projects in conjunction with the states and other entities.

V. Administration Initiatives

The Subcouncil is encouraged at seeing many pro-competitive infrastructure programs in the Administration's proposed FY 1994 budget. We are also encouraged by the progress being made at DOT in a number of areas to encourage congestion pricing both for highways and aviation; to develop innovative contracting mechanisms that will mean building new roads to last 40 to 50 years instead of 20 to 30 years; new federal requirements that states maintain their highways; and agreements with the laboratories of the Departments of Energy and Defense on pursuing research on dual-use transportation technology.

Two other initiatives are highlighted here for their importance for competitiveness reasons:

■ ***Clean Cars.*** The Subcouncil supports the Administration's proposal to convene a Clean Car Task Force linking research efforts of federal agencies with US auto manufacturers in a strong push for American companies to develop a clean car and thereby seize the competitive advantage in transportation markets worldwide. A push for clean cars is consonant with the environmental direction of the Clean Air Act Amendments and the National Energy Act, and the environmental concerns of the American people. It is also one of the great competitiveness challenges of the next two decades, and could have a profound and positive transformation on the US automotive industry as well as the entire transportation sector.

■ ***Sector Commissions.*** The National Commission to Ensure a Strong Competitive Airline Industry has an opportunity to have a major impact on the future of the industry. We look forward to the Commission's results, which we anticipate will be seriously considered by the Administration, particularly recommendations for long-term measures to strengthen the industry.

VI. Rethinking Roles of Governments and Sources of Financing

A final issue that the Subcouncil began to deliberate on is the respective role of federal and state governments in infrastructure investment, and the future of the current system of financing. Serious questions have been raised about the federal role in infrastructure; at the same time, states and localities have taken up the slack after years of federal under-investment in infrastructure. The ISTEA legislation has contributed to encouraging a gradual decentralization of transportation decision-making in order to generate more responsive and efficient solutions to needs.

Increasingly, it appears that the public's level of confidence in infrastructure investment depends in large measure on the level of government undertaking the investment. In the last few years, state after state has seen gas tax increases approved for infrastructure spending, while small federal increases in the gas tax have been only reluctantly approved. This is partly because of past large unspent balances in federal trust funds. It is also because people are less willing to pay for things the more indirect are the benefits and when they distrust that the money will be spent wisely, efficiently, and in the nation's best interests. The federal gas tax has lost much of its credibility as a user fee to finance infrastructure investment. Indeed, half of the 1990 increase in the gas tax was diverted for purposes other than transportation.

On the other hand, a federal role in infrastructure continues to be important: (1) to establish a threshold level of capital investment that is critical to long-term productivity and economic competitiveness; (2) to honor federal commitments to national projects such as the interstate highway system (and prospectively, to maintain a high standard of performance on the National Highway System when it is designated); and (3) to distribute investment funds across regions of the country, capitalizing on the interregional "spill-over" benefits of infrastructure.

In light of the budget debate, the availability of federal financing and the role of the federal government will need to be re-examined. Alternative sources and methods of financing will receive increasing attention, with a far greater reliance on project finance and user fees. DOT has taken constructive steps in opening the door to congestion pric-

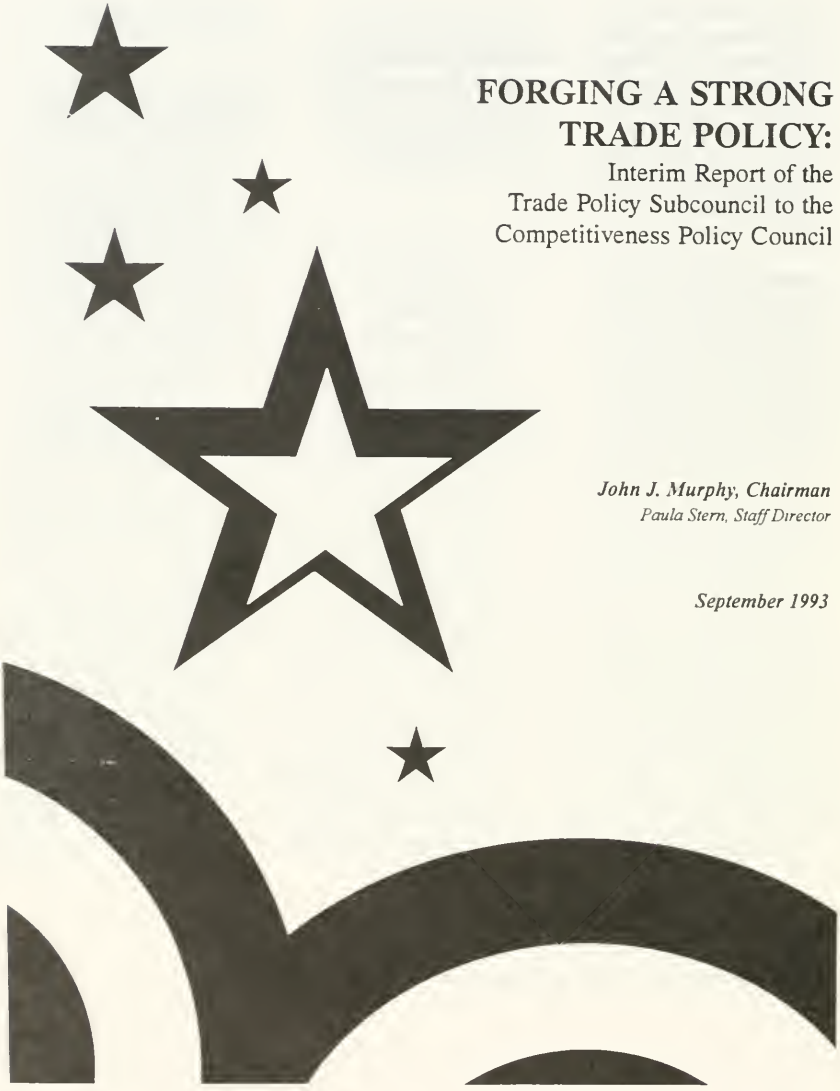
ing and toll collection on federal roads; other barriers to private/public partnerships need to be addressed as well. Potential federal (and state) roles as guarantor, underwriter, or initial investor in infrastructure projects will need further debate and clarification. The federal presence in the ongoing debates on privatization and alternative financing must be strengthened.

Recommendation: The Subcouncil recommends that attention be given at the highest levels of the Administration to the roles of federal, state, and local governments in financing infrastructure, and to exploring how alternative funding mechanisms can be developed and barriers to financing removed so as to provide stable sources of infrastructure funding. This assessment could take place in the context of the National Performance Review being conducted by Vice-President Gore or through the National Economic Council's task force on infrastructure financing.

VII. Additional Research

The Subcouncil has identified a number of areas where additional research would be useful; in some of these areas, the Subcouncil may itself commission or compile research. The areas include:

- a comparative analysis of how operating expenses and capital investments are classified and handled in the budgets of other countries;
- development of guidelines and a methodology for estimating the competitiveness impacts of infrastructure projects; in current cost-benefit analyses, there is no established way to capture the spill-over benefits of infrastructure projects in enhancing trade or productivity; and
- an evaluation of the role of user fees in bringing a marketplace discipline to public-private infrastructure projects.



FORGING A STRONG TRADE POLICY:

Interim Report of the
Trade Policy Subcouncil to the
Competitiveness Policy Council

John J. Murphy, Chairman
Paula Stern, Staff Director

September 1993

Trade Policy Subcouncil
Competitiveness Policy Council

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I. Introduction

The US economy is part of an integrated world economy with exports and imports of goods and services equalling one quarter of America's gross national product. This interrelationship between domestic and international economic matters is demonstrated by the fact that reducing the budget deficit will probably have a larger impact on reducing the trade deficit than any other single policy action. After some initial delay, execution of the Clinton Administration's trade policy is on target, but more needs to be done to assure American economic competitiveness.

The Trade Policy Subcouncil report, "A Trade Policy for A More Competitive America," emphasized the need to shift American thinking on trade policy to encourage exports. The report reflected the views of business, labor, government and public interest representatives, and focused on six main areas: global growth, exchange rate stability, trade negotiations, export financing, export promotion and removing export disincentives. The outcome of the G-7 Summit and the announcement of the US-Japan Bilateral Framework in July, along with the release of the Trade Policy Coordinating Committee (TPCC) "National Export Strategy" report to the Congress on September 29, 1993, are important milestones for examining the Administration's progress in these six areas.

For the first several months of the Administration, its actions seemed slow at a time when the development of an export mentality throughout the government and private sector was imperative. Negotiations in the context of the G-7, the General Agreement on Tariffs and Trade (GATT), the North American Free Trade Agreement (NAFTA), and US-Japan Bilateral Framework now demonstrate, however, that the Administration is advancing a global growth strategy and market opening efforts through multilateral and regional negotiations, both major themes of the Second Report of the Competitiveness Policy Council. Moreover, the TPCC report is implementing many of the Council's specific recommendations for increasing export financing and promotion and reducing export disincentives, most prominently export controls. This export commitment is critically important at a time when expansion of overseas markets for US goods can help offset slow growth of the US domestic market.

II. Global Growth Strategy and Exchange Rate Coordination

The full Council and Trade Policy Subcouncil recommended G-7 initiatives which would sustain and enhance global growth as well as maintain a competitive exchange rate for the dollar. Fiscal stimulus was recommended to boost domestic demand in Japan. Fiscal tightening was recommended in Germany to facilitate lower interest rates there and throughout Europe. The Subcouncil recommended that exchange rate coordination be built upon "reference ranges" like those installed in the Louvre Accord in 1987 to make US goods more competitive and adjust the undervalued yen. The Subcouncil also recommended institutional reforms to facilitate coordination.

At the Tokyo G-7 meetings held in July, the Clinton Administration took some significant steps, consistent with full Council and Trade Policy Subcouncil recommendations, to implement a *global growth strategy*. The United States pledged to cut

its budget deficit; Europe committed to lower interest rates; and Japan agreed to implement a stimulative economic policy aimed at increasing domestic demand through fiscal measures.

In the US-Japan Bilateral Framework, the two countries pledged to advance macroeconomic coordination. US budget cutting and Japanese growth led by domestic demand are appropriate actions in light of the economic situation in both countries.

Although a global growth strategy is taking root in this international economic dialogue, implementation is still lacking in some crucial areas. First, Japan must take stronger measures to stimulate demand. Japan has only begun to perceive the effects of the August 1992 and April 1993 stimulus packages, and because of continuing weak consumer demand virtually every political party in the July electoral campaign proposed tax reduction measures among other actions in the months ahead. Post-election statements issued by Morihiro Hosokawa, the newly elected Japanese Prime Minister and leader of the seven-party coalition, however, suggest that traditional bureaucratic cautiousness may retard the implementation of fiscal initiatives needed to stimulate the Japanese economy. This is so even though the new government launched this Fall a round of deregulation measures, as well as another fiscal stimulus package.

Second, Germany must build on the cautious interest rate reductions made by the Bundesbank in recent months in order to reverse its negative growth and the double digit unemployment that has spread throughout Europe. Europe's widening of the exchange rate margins under the European Monetary System (EMS) in August may permit additional interest rate reductions and hence could stimulate a more rapid pickup of growth.

With regard to *exchange rate coordination* among the world currencies, the Subcouncil report stated that "the United States must address the budget deficit to sustain long term interest rates and a competitive exchange rate for the dollar." The US deficit cutting program has helped to correct the yen's earlier undervaluation as interest rates in the United States have dropped. The dramatic burgeoning of Japan's global trade surplus, combined with the market's perception of US official jawboning in the first months of the Administration, have had the effect of pushing the yen higher against the dollar in currency markets. The yen appreciated by roughly 20 percent from January until late August, when the central banks of both nations intervened to counter a further rise. Meanwhile the Exchange Rate Mechanism (ERM), which established tight exchange rate ranges within which European currencies were permitted to fluctuate, has been substantially broadened. Bearing all these developments in mind, currency reference ranges around current levels might assist in maintaining a competitive level for the dollar and insure against renewed yen depreciation. On the other hand, others have serious reservations that help to explain why references ranges have not been implemented to date. The recent G-7 Finance Ministers' communique addresses the need for coordination but avoids reference ranges, stating merely that "efforts to make exchange rates more stable and better reflect economic fundamentals will be most successful if accompanied by a close coordination of macroeconomic policies."

III. Trade Negotiations

The Trade Policy Subcouncil recommended that GATT nations conclude the Uruguay Round as soon as possible and schedule a post-Uruguay Round multilateral trade negotiation to deal with new issues

such as the linkages between trade and the environment. The Subcouncil also supported continuing bilateral and regional market access talks. G-7 leaders have agreed to give the Uruguay Round the highest priority and welcomed the negotiated market access package as an impetus for restarting the stalled Round.

Sir Leon Brittan, chief trade negotiator for the European Community (EC), speculated that the new market access package concluded at the Summit will make it possible to conclude the Uruguay Round by the end of the year, and US officials have made confirming remarks. With Congress signaling its support by renewing the President's fast track trade negotiating authority, the final stages of negotiations should be complete by mid-December 1993. Obstacles remain, however. France objects to the agricultural arrangements embodied in the November 1992 Blair House Accord. Britain asserts that the United States will have to make further cuts to US textile tariffs. And Japan must agree to further market access concessions.

The market access package adopted at the G-7 Summit shows clear progress in addressing the Trade Policy Subcouncil's recommendations for trade liberalization, especially in those areas of pharmaceutical products, medical equipment, beer, furniture, construction equipment and distilled spirits where tariffs would be eliminated. In addition, tariffs on textiles, apparel, and ceramic products would be cut by up to fifty percent. Tariffs on glass products would be cut by twenty-five percent. This was a major step in clearing the way to agreement among the 106 members of GATT.

In addition to the multilateral efforts made in trade negotiations, regional trade negotiations continue. The Clinton Administration has completed negotiations on side agreements for the North American Free Trade Agreement (NAFTA) to address labor and the environment, two issues identified by the Trade Policy Subcouncil as needing further attention. President Clinton has emphasized the importance of the Pacific rim nations for the American economy and has announced his intention to strengthen economic ties between the United States and the Pacific rim by creating a "new Pacific Community." President Clinton has called for an informal leadership conference of Asian Pacific Economic Cooperation (APEC) members to follow a meeting of the APEC ministers in November in Seattle.

IV. Export Financing

The Trade Policy Subcouncil recommended improving the effectiveness of US export financing to aid in export promotion. Specifically, the Subcouncil called for increases in the Eximbank budget as well as increased participation by commercial banks via well-targeted "bundling" and other programs in order to meet the rising demand for export financing and to strengthen the US response to subsidized exports by its trading partners. The Subcouncil also called for additional resources to help the Eximbank run more efficiently and avoid delays in time-sensitive business and marketing decisions.

The Administration requested $757 million in FY 1994, the same as requested for FY 1993, for the Eximbank. The House provided $700 million for FY 1994; however, the Foreign Aid Appropriations Conference approved Senate language funding the Eximbank at $1 billion, $700 million for core programs and $300 million for the Newly Independent States (the former Soviet Union). The Trade Policy Subcoun-

cil had called for $1.2 billion to finance $20 billion of exports, and Congressional supporters of the new legislation state that $1 billion can support $18 to 20 billion of financing.

The Eximbank has been making efforts to revitalize its programs and forge more public-private partnerships, building on initiatives begun by the previous Administration. To support the expansion of exports, the Eximbank is attempting to find ways to make its programs more easily available to small and medium-sized businesses, which in the past have received less Eximbank support than larger firms, and to create "a more proactive, consumer-friendly Bank."

In early May, the Chairman of the Export-Import Bank announced the use of a Letter of Interest designed to reduce application processing time from six months to seven days, an idea developed in the previous Administration. The Eximbank has also continued its focus on the Small Business Group strategy, implemented in Spring of 1992, which added visibility to small businesses and to the city-state training programs.

The Subcouncil had also recommended that the United States strengthen its response to "tied aid" financing by its trading partners by aggressively enforcing the OECD arrangement on "tied aid" financing and "mixed credits" (a blend of commercial-type financing with development lending). The TPCC report, stating that "Details of recommendations are not available at the time of this first printing," reflected a highly publicized Administration debate on this topic. Subsequently the Administration announced it would set aside $150 million from existing export finance programs to combat "tied aid."

V. Export Promotion

The Trade Policy Subcouncil urged the Administration to act as a catalyst in the creation of an "export mentality" by streamlining the export promotion bureaucracy. It recommended pooling, expanding and reallocating the export promotion budget; developing a clear export promotion strategy; and focusing on the insufficiently tapped potential of small and medium-sized businesses.

The Competitiveness Policy Council and its Trade Policy Subcouncil recommended a unified or single budget function to help establish export promotion priorities. The TPCC report calls for such a unified budget in FY 1995. The President's export plan envisions a National Economic Council (NEC) interagency group chaired by the Commerce Department that will assist the Office of Management and Budget to translate priorities into a unified budget. While the groundwork has been laid for the implementation of this very important recommendation, next year tough political decisions still need to be tackled involving 1) the allocation of export promotion monies to agricultural or manufacturing products (roughly 80 percent is now allocated for agriculture, a sector that produces only 10 percent of all exports); and 2) the possible elimination or consolidation of some of the 19 agencies currently involved in export promotion.

President Clinton announced in May that the TPCC, under the leadership of Secretary of Commerce Brown and Eximbank Chairman Brody, would serve as a vehicle for coordinating US export promotion. The TPCC's National Export Strategy effectively addresses a broad range of ideas and issues raised in the Trade Policy Subcouncil report. The President's export plan calls for the creation of one-stop shops where all federal export promotion and trade finance programs can be accessed. Initially, four offices located in Los Angeles, Chicago, Baltimore and Miami will be created with more to

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come in the future. These offices are designed to eliminate confusion surrounding the current export information regime, and to assist small and medium-sized businesses which do not have offices in Washington. While the TPCC plan neither consolidates specifically nor eliminates any of the 19 agencies currently operating some 150 different export promotion programs, it does make progress in defining each of the agency's scope. The new program should reduce current confusion over jurisdiction and make the export promotion bureaucracy more user-friendly.

VI. Export Controls

The Trade Policy Subcouncil called for, and the full Council endorsed, the examination and removal of unnecessarily burdensome export controls and other domestically applied export disincentives. The Subcouncil's report cited statistics showing that these disincentives may account for as much as $30 billion in lost US exports. Specifically, the Subcouncil called for fundamental reform in US export control policy-making and administration, multilateral rather than unilateral export controls, and consolidation of export control administration into one federal agency under the supervision of the National Economic Council (NEC) in conjunction with the National Security Council (NSC). The Subcouncil proposed centralizing export control decision-making in the Commerce Department, especially on routine licensing.

The Administration's September announcement calls for the immediate removal of export restrictions on most computers. The plan also calls for a sharp reduction in approval time for export licenses. The Administration's steps to streamline and modernize the export control regime are consistent with the Trade Policy Subcouncil's recommendations.

With these major announcements, the Clinton Administration is fully engaged in export control liberalization. Now that the President has made these significant decisions, the focus must shift to Congress and the Export Administration Act (EAA). The EAA expired September 1990 when Congress's attempt to reauthorize the EAA failed. Consequently, the Congress extended the EAA until June 1994. It is hoped that when the Congress takes up new legislation, it will embrace the Council's principles of reducing unilateral controls and relying on multilateral mechanisms of enforcement. To build on what the President has started, the Congress should avoid legislating new foreign policy controls that could lead to unintended set-backs to this welcome trade liberalization.

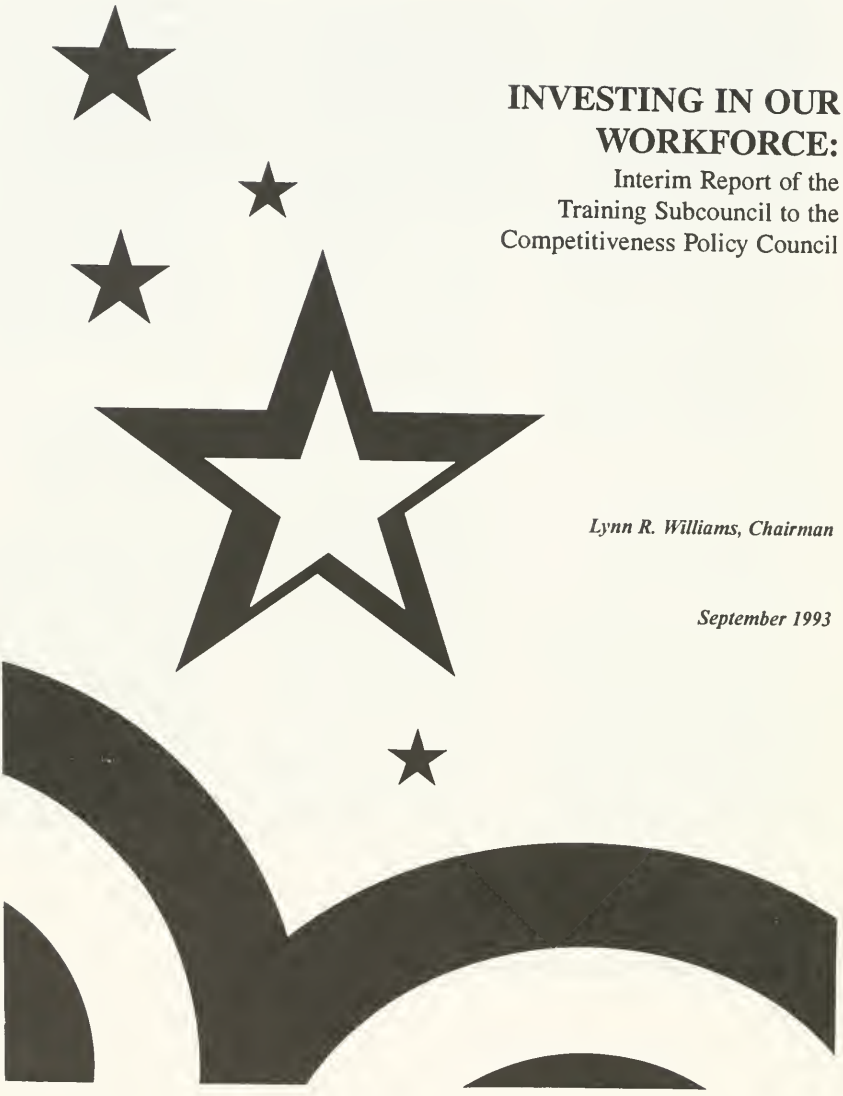
The Administration is reviewing existing Coordinating Committee on Multilateral Export Controls (COCOM) requirements and will likely expand the COCOM's scope to include regimes established to prevent weapons proliferation. The recent US moves to ease controls could accelerate a COCOM agreement to liberalize computer and telecommunications controls, as well as an agreement with Japan that will relax controls on supercomputers.

VII. Conclusion

The full Council and the Trade Policy Subcouncil recommended a global growth strategy based on macroeconomic coordination to achieve higher national growth rates among the recession-burdened G-7 industrialized economies. The Clinton Administration is implementing many of the Council's recommendations, such as addressing the US budget deficit and urging the

G-7 to adopt a global growth strategy. However, much remains to be done. Further commitments are needed from G-7 countries concerning macroeconomic coordination. The Administration's TPCC export plan mirrors many of the Council's detailed recommendations to streamline and energize US export promotion and financing policies and to reduce export controls that unnecessarily restrict US exports in the post Cold War era. Administration leadership, multilateral coordination and Congressional reinforcement are all part of a continuing task to achieve and secure future gains in each of these areas.

In recent years, exports have been a key engine of economic growth. Their importance may increase as long as fiscal policy remains constrained by high budget deficits. Therefore, a US trade policy aimed at boosting exports must be an integral part of a long term, ongoing, overall strategy to improve US competitiveness.



INVESTING IN OUR WORKFORCE:

Interim Report of the
Training Subcouncil to the
Competitiveness Policy Council

Lynn R. Williams, Chairman

September 1993

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I. Introduction

During the 1992 Presidential campaign the three major candidates each placed high priority on the importance of "investing in people," through creating jobs and improving worker skills and the tools available for work. Much of this interest was reflected in candidate Bill Clinton's book ***Putting People First***. Since coming into office, President Clinton's concern has focused on the apparent disconnect between economic growth and job creation. This concern served as the centerpiece of the recent G-7 meeting in Tokyo, and the participants agreed to hold a conference to discuss this issue in the fall.

The United States is faced with the need to pursue two objectives simultaneously. On the one hand we must adopt macroeconomic policies which promote the creation of more jobs. At the same time resources must be devoted to worker training and investment in new technologies and equipment, so that these new jobs are "good" jobs, i.e. high wage jobs employing high skills. As the Council points out in its second report, productivity growth alone is not enough, we must also promote high growth policies in order to improve our competitiveness and increase the standard of living of ***all*** Americans.

The Training Subcouncil of the Competitiveness Policy Council met throughout 1992 to develop recommendations on ways to improve worker skills. The group was encouraged by the attention paid to the needs of workers during the campaign but is now concerned that these issues have once again fallen off the policy radar screen. We remain committed to working toward implementation of these policies. The Subcouncil believes that we must actively pursue both policy objectives simultaneously -- creating more and better jobs -- and not one at the expense of the other.

The focus on training results from considerable research which suggests that training enhances productivity, which in turn improves the standard of living of all Americans. A fully trained workforce insures higher product quality, making US goods more competitive in the domestic market against foreign imports as well as more marketable in overseas markets. **Investing in workers, through education and training, is at least as important as investing in machinery and equipment.** There is little point in introducing technologically advanced machinery without properly training workers in order to get the most out of that equipment. Worker training is also an investment in encouraging labor market flexibility throughout the economy.

The United States currently has no coherent program for worker training. Workers, youth and firms face a confusing array of public training programs, riddled with duplication and overlap. No central "intake" center helps potential trainees seek information on jobs skills. Inadequate attention is devoted to connecting public delivery systems with private sector needs; virtually none is directed at evaluating results. Workforce training needs are being overlooked by workers themselves and by the firms they work for.

In its initial report to the Competitiveness Policy Council, the Training Subcouncil made recommendations in four major dimensions aimed at creating a strategy of "lifetime learning." Any system of "lifetime learning" must be founded on a sound basic education system, guided by high standards and fair assessments.[1] Beyond this foundation, the first step is to improve the "school to work" transition. The second area is continuous worker training, in order for workers to upgrade their skills as the demands of their jobs inevitably increase in today's rapidly shifting, internationally exposed economy. Third is assisting the transition from job to job, by offering retraining and other types of assistance to adults dislocated by technological or other change in the economy. Fourth is

[1] The Council's Education Subcouncil focused on achieving these reforms in the nation's education system. Its report, "Toward a Standards Based Education System," is part of Reports of the Subcouncils and is available from the Government Printing Office

the streamlining and improving current worker training programs.

In each of these areas listed above, the United States faces two challenges. **First, we must improve the efficiency of existing programs.** There is considerable overlap in current training programs and very poor coordination between various types of worker assistance. **Second, given our low starting place relative to our major competitors, the United States must simply do more in each of these areas.**

II. School to Work Transition

In our original report, the Subcouncil called for the federal government to **finance pilot programs of public-private cooperation,** such as apprenticeship programs, compacts where employers guarantee jobs to students who do well in school, cooperative education where seniors work part-time in areas connected to their training specialty, and career academies where students develop skills around a specific field. **Most importantly, as with education, the government should insist that agreed skill standards provide the foundation for all these efforts.**

The Clinton Administration has placed "school to work transition" high on its priority list, requesting $270 million in additional funds for FY 1994. The Administration has called for expanded demonstration projects in areas where there currently are no programs underway. The Subcouncil is encouraged by the Administration's efforts in this area and calls on Congress to support this initiative.

III. Continuous Worker Training

There is general agreement that we must devote more resources to providing continuous training to active workers. American companies already devote substantial dollars to workforce development, although the resources are not distributed proportionately according to need or type of worker. The rapid pace of technological change dictates the need for a system of ongoing training for all workers.

While there is little disagreement on the need for more worker training, there is quite a lot of debate on how to finance it. The Subcouncil originally suggested three alternative methods of fostering increased training: (1) "play or pay," requiring firms to invest 1 1/2 percent of payroll in training, by either conducting the training themselves or contributing the equivalent to a national training fund; (2) federal grants aimed mainly at smaller firms, matched by state contributions financed from general revenues or a small payroll tax; and (3) training tax credits.

In spite of the interest during the Presidential campaign and repeated calls for the importance of increasing working training, the FY 1994 budget does not include any new funds for worker training. It is unlikely that any significant training effort, particularly if it places any additional burden on business, will be instituted within the next year, given the concern over the increased costs associated with health care reform. The Subcouncil calls on the federal government to work with state governments, businesses and labor representatives to develop a long-range strategy for improving the availability of training for all workers. The first step of this strategy should be the development of national training goals. Companies should be encouraged to meet these goals through financial and non-financial incentives, similar to the requirement that all recipients of the Baldrige Award meet certain training objectives.

IV. Dislocated Worker Programs

Defense cutbacks, technological change and trade liberalization have joined forces to place the US labor

market under more structural pressure today than in any time over the last fifty years. Between 1987 and 1992, 5.6 million American workers with three or more years of seniority permanently lost their jobs. By January 1992, more than a third were still looking for new jobs or had dropped out of the labor force entirely. We are wasting a large pool of talent.

There is considerable evidence that the benefits of defense cutbacks, technological change and trade liberalization will outweigh their associated costs, but we cannot ignore the fact that critical segments of the US economy may experience severe dislocation as a result of these developments. Recent experience suggests that these dislocation effects are usually concentrated by industry and region, making the adjustment process even more difficult.

The United States needs a comprehensive program to help those workers who are adversely affected by policies which aim to benefit the economy as a whole. Government labor market programs serve as one vehicle for helping reduce the adjustment burden borne by these workers. A comprehensive program would combine various aspects of existing programs, providing adequate benefits to all workers in need. Benefits should include job search assistance, skills assessment, counseling, referral services, adequate income support, payments for retraining programs and extended income and benefit (including health care) payments through the training period.

Realizing this great need, the Administration has requested approximately $1.2 billion in additional funds for dislocated worker assistance in FY 1994. While the level of funding is far greater than that devoted to dislocated workers over the last decade, we are still awaiting important details on the type of benefits and how they will be delivered. The Subcouncil believes that any serious adjustment program must include some type of income maintenance payments and must have a secure funding source, so that all workers in need will receive adequate benefits, including access to meaningful training, job search assistance and income maintenance throughout the transition period.

This program is a modest attempt to offset the huge financial and personal losses which workers experience when they lose their jobs. It is also an investment in encouraging labor market flexibility throughout the economy.

V. Streamline Programs

We need to coordinate various worker training programs at the local, state, and national levels in order to better serve our training needs. **The United States needs to create a comprehensive network of local centers to provide one-stop shopping for students, employees and firms providing skills assessment, career counselling, job placement, recruitment and referral assistance.** These local centers should evaluate and certify providers of training services, and promote the formation of training consortia by companies and unions. They should report to new state coordinating councils (as already set up in New Jersey and Oregon), which should be required by the federal government as a condition for disbursement of its training, education and economic development funds.

VI. Conclusion

The Clinton Administration has indicated that it places a high priority on the development of workplace skills. The serious attention devoted to these matters by the President and the Secretary of Labor is significant. The Subcouncil supports the Administration's efforts to develop proposals in the areas of School to Work Transition and Dislocated Worker Assistance. These reforms hold great promise. However, their ultimate effectiveness will hinge on the details of program design. How the Administration and Congress address issues such as funding, eligibility and benefit levels will determine whether the reforms have a durable effect on our competitiveness.

Acknowledgments

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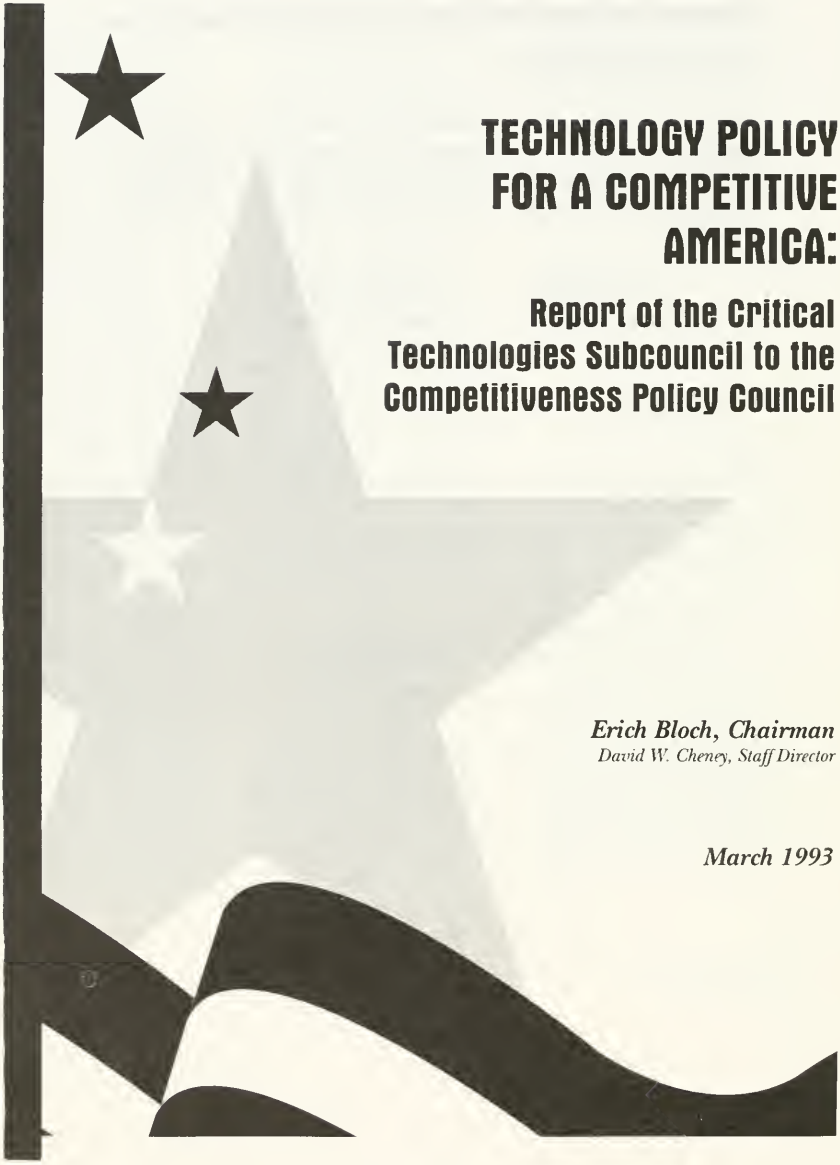
C. Fred Bergsten
Chairman

Howard Rosen
Executive Director



TECHNOLOGY POLICY FOR A COMPETITIVE AMERICA:

Report of the Critical Technologies Subcouncil to the Competitiveness Policy Council

Erich Bloch, Chairman
David W. Cheney, Staff Director

March 1993

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Competitiveness Policy Council

Washington, D.C.

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Dear Fred:

As per our mandate, the Critical Technologies Subcouncil of the Competitiveness Policy Council has been working to develop detailed recommendations for improving the contribution of technology to America's economic welfare. The group met six times between June and December of 1992 in an intense effort to develop a comprehensive national strategy for US leadership in technology. This report presents our strategy and recommendations.

From the beginning, the Subcouncil shared views that shaped its recommendations. First, we agreed that the mission was broader than that implied by the "Critical Technologies" title. With the end of the Cold War and a new national focus on improving US economic performance, the nation needs to reexamine its system of developing and applying technology. Our goal was to create a comprehensive technology strategy which reflects these new priorities.

Second, we agreed on the need to define "technology" broadly and to focus on the application as well as the development of technology. In an era when technical information and ideas flow rapidly around the world, the ability to absorb and apply technology, the skills of the workforce, and the knowledge embodied in organizations are essential for leadership in technology.

Third, we agreed to build on rather than repeat the wealth of previous studies of critical technologies and technology policy. These studies have documented the deterioration of America's technological leadership and the discouraging outlook for the future, and have developed many recommendations to improve the US performance. We evaluated and built upon the best of those recommendations, and focused on how to make them implementable.

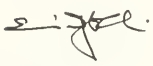
Fourth, it was clear that America has enormous technological capabilities in its universities, industry, workforce, and government laboratories, but that we are not using these resources effectively. For any strategy to be effective, it must build cooperation between these sectors of the nation, and be supported by each of them.

The Subcouncil was uniquely suited for this task. Our members were selected for their expertise and diverse experiences in shaping, using, and analyzing technology policy from the perspectives of industry, government, labor, and academia. Their experience within government ranges from the Congress, to the Executive Office of the President, to the many departments and agencies. The group was in a position not only to identify sound policies that could be effectively implemented, but, equally importantly, judge proposals that looked good on paper but were unlikely to work in practice.

With the end of the Cold War and the new consensus on the need to improve our economic performance, there is a window of opportunity to restructure America's technology policies to meet the needs of the new era. To take advantage of this window, the proposals put forth must be effective, acted upon quickly, and represent a consensus of industry, government, and academia, and labor. They should also create a framework that US technology policy can build upon for the future. The strategy we lay forth here is a cohesive set of such proposals. They are comprehensive and challenging, but also practical and implementable. We believe they will have a significant impact on US technology leadership.

The priority now is for action. The Subcouncil plans to work with the Competitiveness Policy Council to see the recommendations in this report fully implemented, and we will call on industry, the Administration, Congress, labor, universities, and the states to actively support our efforts.

Sincerely,



Erich Bloch
Chairman, Critical Technologies Subcouncil

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Executive Summary

The development and application of technology is a key driver of American economic growth, competitiveness, and increases in the US standard of living. Advances in technology enable the creation of new products and industries, improve existing products and reduce the cost of making them. In addition, competition in many of the fastest growing manufacturing industries, including electronics, biotechnology, aerospace, and communications, is primarily based on skill in developing and applying technology.

Applying new technologies well is vital in nearly all manufacturing and service industries and is essential to achieving other national goals, such as military security, protection of the environment, and energy conservation. Technological leadership is especially important to US firms since they have relied on it to overcome other disadvantages relative to their international competitors, including less patient capital, a less supportive trade policy, and high health care costs.

For most of the past 50 years, technology has been an unquestioned American strength. US industry was the leader in virtually all key areas of civilian technology and was not seriously challenged in any technology intensive commercial industries. Today, US industry's share of both domestic and global markets has decreased dramatically in many high technology industries. In many leading edge areas of technology, US leadership has declined or has been lost.

Much of this change can be attributed to the improved performance of our competitors, who have coupled increased investment in research and development (R&D) with the development of skills to speed the application of technology to commercial opportunities. US support for technology, on the other hand, is still largely conducted within a framework developed for the Cold War. The government funds primarily basic research and R&D in support of government missions, dominated by defense. This system functioned well in the 1950s and 1960s when US companies were far ahead of their international rivals but is less effective today when defense no longer drives commercial technologies and foreign competitors have vastly improved their capabilities.

US policy and industry practices have begun to respond to the changing international environment, but in general, action has been too little, too slow, and uncoordinated. There are still many opportunities to improve.

Compared to our competitors, the federal government continues to spend significantly more on defense technologies and much less on R&D and technology to help expand commercial opportunities and solve industrial problems. The private sector also underinvests in areas that are a prerequisite for effective commercialization, including R&D, plant and equipment and training. In addition, government and the private sector are not taking full advantage of opportunities to use their resources more effectively by cooperating in areas of mutual interest.

The domestic infrastructure necessary to capture and apply technical information is also being neglected. Today, many elements of technology flow freely around the world and the capacity for a nation to quickly absorb and disseminate technology is a key contributor to a nation's ability to benefit from advances in technology. The US

needs a strong infrastructure of research facilities, skilled workers, information networks, and manufacturing capabilities to take advantage of technology being developed internationally and to make the United States an attractive place for R&D and high value-added manufacturing.

Despite these problems, the United States science and technology enterprise still has many outstanding strengths, including unparalleled research universities, an open and entrepreneurial climate that attracts the best minds and ideas from around the world, technically strong national laboratories, and strong corporate research laboratories. The US still leads the world in generating inventions, and has increasingly refocused on high quality manufacturing.

We believe the US needs a national technology strategy to effectively mobilize these existing strengths and cooperatively address problems within the current technology system. The ultimate goal of the strategy we propose is US leadership in the development and application of technology to promote industrial competitiveness, economic growth and an improved standard of living. This does not mean the US must or can obtain absolute leadership in all technologies. Those days are past. But we should be at the leading edge of all important areas of technology, and be second to none in our ability to use those technologies.

To effectively develop and implement such a national technology strategy, a greater focus on technology and competitiveness is needed at several levels of government. At the policy level, there is little coordination between technology policy and economic, trade, regulatory, and education policy. These all significantly affect technology leadership. At the program level, technological resources and decision-making authority are dispersed throughout the federal government, industry, the states, and universities. There is currently limited capability to implement programs that cut across these institutions.

With the end of the Cold War there is an unprecedented opportunity to rethink our approach to technology and forge a new national strategy that will mobilize the technological capabilities and great strengths of the US towards priorities of economic competition. There is an opportunity to get industry, academia, and government working together to enhance the contribution of technology to the national welfare. The recommendations outlined below will do this.

Key Recommendations

1. Increase National Investment in Civilian and Dual-Use R&D

Civilian R&D is an important driving force of technology leadership, yet US investment in this area remains far below that of its foreign competitors. The US system of R&D should be modified to increase private sector investment in R&D, assure that federal R&D is relevant to industrial needs, and maintain national investment in non-military R&D, as a percentage of gross domestic product (GDP), so that it is competitive with that of other leading industrial nations. The following actions should be taken to achieve this goal:

▶ ***Stimulate private sector R&D.*** Industry-funded R&D most accurately reflects the needs and wants of the market, yet US industry funds a significantly lower level of R&D as a percentage of GDP than any of our major competitors. This underinvestment may be attributed to growing competition, increased pressure to show profits and an unfavorable investment climate. A permanent R&D tax credit that includes process R&D and additional credits for industry-sponsored academic R&D and consortia should be established to encourage increased industry investment in R&D.

▶ ***Use federal resources made available through defense reduction to build civilian and dual-use R&D.*** As a first step, $7.2 billion should be shifted from defense production and R&D to priority civilian research and technology programs. This will equalize federal support for defense and civilian R&D. The defense acquisition system should also be restructured to take advantage of

today's civilian technology and ensure a more flexible, less bureaucratic relationship between government and industry.

▶ ***Focus federal R&D to improve economic performance.*** Valuable expertise, equipment and facilities are housed within the government system of R&D, but for the most part, these strengths have not been focused on civilian needs. To direct federal R&D capabilities more effectively towards civilian needs, industry-driven cooperative R&D programs should be increased where federal agency missions coincide with commercial interests.

Specific actions that should be taken include increasing private sector input into agency R&D priority setting, through both advisory committees and informal contacts, and reallocating at a minimum an equivalent of 10-20 percent of Department of Energy and National Aeronautics and Space Administration lab R&D to support jointly planned and funded industry/government R&D, with the stipulation that the funding will be cut if not adequately refocused on industrial needs. In addition, government R&D programs in which industry shares in the cost and participates in setting priorities, including the Advanced Technology Program (ATP) in the Department of Commerce and the National Science Foundation's Engineering Research Centers, should be expanded. The Federal Coordinating Council for Science, Engineering and Technology (FCCSET) initiatives should also be expanded and modified to increase private sector participation. Private sector cost sharing and input in these programs are important to ensure that the R&D is relevant to industry needs and is disciplined by market forces.

2. Promote Commercialization of Strategic Technology

The central problem in the US performance in technology is the failure of the private sector to adequately commercialize technologies. This is largely due to an unfavorable financial environment that has caused industry to underinvest in technology and related areas such as training. Although there is no single mechanism that will address all aspects of the commercialization problem, there are several ways that public policy can make investments more favorable for the private sector and the investment community. They include the following:

▶ ***Lower the technical risk.*** Technical risk can be reduced through federal support for research, development, testing or demonstration of technologies. Joint industry/government projects designed to develop, test, and demonstrate advanced technologies in areas of mutual interest are appropriate mechanisms for reducing the technical risk that individual firms must bear to develop and commercialize technology. Possible joint projects include expanded communications and networking within the High Performance Computing and Communications Initiative; a program to develop environmental technologies; and programs to develop more efficient transportation systems. In addition, current and future cross-agency technology initiatives, such as the Advanced Materials and Processing Programs and the forthcoming initiative on Advanced Manufacturing, should expand their current focus on R&D and develop plans that address the commercialization of technology.

Cooperation among firms can also reduce the risk born by individual companies. Industry's use of R&D consortia has greatly increased since the National Cooperative Research Act (NCRA) of 1984 reduced antitrust barriers to cooperative R&D. In many capital intensive industries, collaboration in manufacturing is also becoming increasingly necessary due to the high cost of developing new manufacturing facilities. The NCRA should be extended to provide limited antitrust exemption for US-based joint production ventures. The Subcouncil also supports further efforts to expand cooperative R&D through the consortia tax credit mentioned previously, as well as through direct government funding of R&D consortia, such as SEMATECH and the Advanced Battery Consortium.

▶ ***Reduce market risk.*** The government can also promote commercial-

ization by reducing the market risk for goods using leading edge technologies. Defense has been the traditional driver of federal procurement of technology, and although this role is declining, there are still many opportunities for government to demonstrate or be a smart "first customer" of commercial technologies through purchases for internal use, government missions, national infrastructure projects, etc. This government "pull" can serve as a catalyst for industrial commercialization by testing and demonstrating leading edge technologies and by helping industry gain the experience needed for scale-up and manufacturing of commercial products.

Many of the joint projects mentioned previously will help to expand markets for new technologies in their targeted areas. The following actions will also encourage innovation and help stimulate markets in many other areas:

(1) Modify procurement regulations for agency purchases or agency contracted development to give priority to commercial specifications and products;
(2) Evaluate selection criteria for bids to minimize life-cycle cost rather than acquisition cost;
(3) Base government procurement on performance standards; and
(4) Experiment with agency procurement budgets to allow them to flexibly procure leading edge technologies.

▶ ***Lower the cost of financing for technology commercialization.*** The following approaches should be considered to help finance industrial commercialization of promising technologies:

(1) Authorize Defense Advanced Research Projects Agency (DARPA), ATP, and the National Institutes of Health (NIH) to purchase equity or extend loans/loan guarantees to help support commercialization of promising technologies developed through their R&D contracts.

(2) Support small business by establishing an additional phase to the Small Business Innovation Research program (SBIR) to provide loans for commercialization.

With these approaches, the work would already be within the federal agency's mission, justifying continued federal support. In addition, the agencies are knowledgeable about the technological opportunities and the progress made in their R&D efforts, putting them in a good position to select the most promising technologies for commercialization. Finally, some agencies, such as DARPA, have demonstrated competence in facilitating the commercialization of technologies. Other agencies would need to build business expertise in their in-house staff, or rely on advice from outside experts in order to effectively manage these programs.

3. Create a World Class Technology Base

A strong domestic technology base of human resources, technically capable small manufacturing companies, research and testing facilities, and human and electronic networks supports R&D and high value added manufacturing and helps ensure that US based companies have the capacity to make use of global flows of technical information. The following actions should be taken to strengthen the US technology base:

▶ ***Strengthen the human resource base needed for superior technology development and manufacturing.*** The knowledge, skills and experience of the workforce are at the core of all successful technology development and commercialization. Government action should target every segment of the US labor pool, from researchers and engineers to workers on the production floor. Priority actions include establishing incentives for workforce training; increasing interaction between industry, university and government scientists and engineers; and creating an apprenticeship and training program for non-college bound youth that is recognized and respected by industry.

▶ ***Increase federal support for industry-relevant R&D facilities.*** Many large experimental facilities, such as synchrotron light sources, the cold neutron source, and the high magnetic field lab, are beyond the capacity of individual firms. Govern-

ment support for these facilities, in conjunction with measures to give industry easy access to government owned facilities, will help assure that industry has access to the tools and instrumentation it needs to effectively absorb and apply technology. Examples of appropriate programs in this area, besides the facilities and instrumentation mentioned above, include initiatives to develop a national information infrastructure. Of particular importance are networks that will allow manufacturers to exchange technical information on products and processes.

▶ ***Strengthen the manufacturing base.*** Technically capable manufacturing companies are an essential part of a strong technology base. US manufacturing extension programs should be expanded to give more manufacturing firms easy access to new technologies, testing facilities, quality management and training programs. This will help improve their competitiveness as well as the competitiveness of their customers. Federal initiatives should require industry and state cost-sharing and build on and support state and local extension programs.

4. Organize US Institutions for Results

US institutions must be better focused on new priorities of economic competition. The new organizational structure must elevate technology policy to priority status, support each stage of the innovation process, and encourage interaction and collaboration within and among federal government, states, industry and academia.

▶ ***Improve technology policy development and implementation in the Executive Branch.*** Within the Executive Branch, support for R&D is dispersed throughout agencies with different missions and goals; linkages between federal technology policy and industry needs are weak; and there are few connections between technology policy and economic policy, regulatory policy, trade policy.

The Subcouncil recommends the following specific actions to address these disconnects and provide the Executive Branch with the knowledge and authority to make informed technology policy decisions:

(1) Create a White House Council on Science, Technology, and Environmental Policy to set directions and policy.

(2) Enlarge the Office of Science and Technology Program structure to serve multiple missions, including providing advice to the President on science, technology, and manufacturing and managing the FCCSET process.

(3) Change the President's Council of Advisers on Science and Technology to include manufacturing and establish it as the focal point for private sector input and joint industry, academic, and government prioritization of the R&D budget

(4) Enhance the capabilities of the Technology Administration in the Department of Commerce and make it a focal point for industry analysis and international technical information.

▶ ***Focus Congress on technology.*** The federal R&D budget is handled by many authorizing committees and appropriations subcommittees within Congress, making it nearly impossible to produce a comprehensive R&D budget that effectively mobilizes resources towards urgent national needs. This committee structure must be realigned to create a more coherent R&D appropriations process that reflects current priorities of economic competitiveness.

I. Introduction

The goal of the Subcouncil on Critical Technology has been to develop a national technology strategy that will sustain long-term US leadership in the development and application of technology to promote industrial competitiveness, productivity increases and an improved standard of living.

We firmly believe that it is important to emphasize both the development *and* the application of technology. Too often people view invention in the laboratory as an end in itself, but technology only boosts industrial competitiveness and national welfare if it is applied promptly and effectively. It is the technology embodied in superior products and processes that ultimately generates wealth and makes possible sustained investment in technology and products, and through this feedback loop ensures continued leadership in technology.

Similarly, the Subcouncil promotes a view of technology[1] that is broader than just hardware, software, or patents; it also includes the know-how, processes, skills, and organizational systems needed to apply knowledge to useful purposes. These components are developed through education, training, and manufacturing as well as through research and development (R&D). It is essential that technology policies recognize the importance of the human element in technical systems, and encourage the development of process and production technologies that are "worker friendly" and that build on, rather than minimize, worker skills.

US leadership in technology is a crucial national goal for several reasons. First, superior development and application of technology is the principal driver of economic and productivity growth in all industrial societies.[2] Advances in technology enable the creation of new products and industries, improve existing products and reduce the cost of making them. This helps firms build or maintain a competitive advantage and increases the standard of living of the nation. Technological leadership is especially important since in recent years US firms have had to contend with a number of disadvantages in relation to their international competitors, including less patient capital, weaker trade policy, and high health care costs. Technology has been, and must remain a compensating source of competitive strength.

Second, competition in many of the fastest growing manufacturing industries, including electronics, biotechnology, aerospace, and communications, is primarily based on skill in developing and applying technology. Output from these and other high-tech industries[3] increased from 17 percent to 25 percent of global production of manufactured goods between 1980 and 1988.[4] Maintaining a lead in the technologies that drive these areas is critical for US economic growth and a positive trade balance.

Third, development and application of technology is central to achieving other national goals, such as military security, protection of the environment and energy conservation. Technology embodied in weapons, information gathering and communications systems has been the primary source of US military superiority for decades. Technology applied to the development of energy efficient and environmentally sustainable products and processes has become critical for achieving economic growth in the face of growing environmental pressures.

Innovations to meet these national goals, in turn, often stimulate new ideas and technologies that have broader applications.

Some people argue that it is impossible to return to the postwar US dominance in technology and that leadership in technology is not a realistic goal. We believe, however, that any goal of less than technological leadership is unacceptable and, indeed, guarantees failure. Although a country cannot be a net exporter of everything, it should strive to make the best products and be the most efficient producer in every industry in which it participates. As a large and diverse economy, the United States should participate in virtually all leading industries. This requires across-the-board strength in technology.

II. The Need for A Technology Strategy

To achieve the goal of leadership in the development and application of technology, we need to put in place a strategy that mobilizes the nation's technical strengths and capabilities to build an integrated national technology base that serves defense, civil, and commercial goals.

The strategy must be jointly developed and implemented by industry, government, universities, and labor, since each sector controls some of the factors that impact US technology leadership. The private sector is primarily responsible for the development of commercial technologies; individual firms control the way they manage technology, as well as the extent to which they invest in and seek out technologies that fit with their long term strategic plans. Government is responsible for supporting R&D with high social returns that individual firms cannot or will not fund by themselves, and through federal laws and regulations, it also creates the economic and legal environment that shapes the activities of individual firms.

In addition, government is largely responsible for maintaining the country's infrastructure, which is essential for effective technology development and application. There are also other key contributors to this infrastructure, including private sector investment in R&D, facilities and manufacturing, and the efforts of labor to organize and maintain a highly skilled workforce. Finally, the research and education decisions made in schools and universities significantly impact the long term US position in technology. Fundamental research within universities lays the foundation for future technology developments and helps determine the viability of the nation's scientists and engineers.

This complex network of roles, responsibilities and capabilities demands that firms, universities and labor organizations become active partners in planning, funding and implementing national programs and policies for US technology leadership. A national technology strategy cannot be wholly effective without this high degree of coordination and cooperation.

Background

Until recently, the US did not need a technology strategy for competitiveness. For most of the past 50 years, technology has been an unquestioned American strength.[5] US industry was the leader in virtually all key areas of civilian technology and was not seriously challenged in any technology intensive commercial industries. To the extent that there was competition in technology, it was with the Soviet Union in military technology.

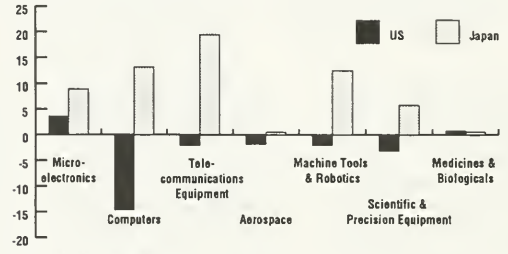
During this period, the US had a national science policy and a strategy for leadership in defense technology. Strong support for basic research and for technology development to meet the mission needs of federal agencies, especially defense, provided enough indirect benefits to keep US industry on the forefront of technology. Basic research supplied industry with new ideas and highly trained scientists and engineers, while the development and procurement of defense technologies provided an initial demand for leading edge technologies and helped establish new industrial sectors. No special policies were intended, or needed, to explicitly facilitate civilian technology development and commercialization.

This system was effective in the 1950s and 1960s for several reasons. US companies were far ahead of their international rivals, many of

whom were recovering from the devastation of World War II, and the economy of that time was largely a national economy. As a result, US companies were in the best position to capture the benefits of federally funded basic research and spinoffs from defense and other government missions. Government procurement and federally funded R&D for health and defense are widely credited with spawning and giving US industry a large lead in computers, biotechnology, advanced materials, semiconductors and aerospace. In addition, support for basic research and the training of scientists and engineers contributed greatly to US strength in the chemical and pharmaceutical industries.

In recent years, however, other countries have substantially caught up with, and in some cases surpassed, the United States in technology. US industry's share of both domestic and global markets has dramatically decreased in many high technology industries (see Figure 1), including machine tools, semiconductors and computers.[6] Study after study show that in many key technologies, US leadership has declined or has been lost.[7] Although the United States has strong technical capabilities, and still leads the world in creating new knowledge, in many industries we lag in applying this technology and quickly getting high quality, low cost products to the marketplace. Studies indicate that while the US still leads in overall manufacturing productivity

Figure 1
Percent Change in Share of Global Exports for Select High Tech Industries (1980-1989)



SOURCE CIA Handbook of Economic Statistics

by some measures, we fall behind in machinery, electrical engineering and transport equipment — three technology intensive sectors that are essential for trade, national security, and economic growth.[8]

There are several reasons why the policies that functioned well in the 1950s and 1960s are no longer as effective. First, we have many more competitors than we had following World War II. In addition, those competitors have become much more capable. It was natural and even desirable that foreign competitors would recover from the war and would develop their own R&D capabilities in commercial technology. In the early 1960s, the United States invested nearly twice as much in R&D as a percentage of gross domestic product (GDP) than either Japan or Germany, but by the late 1980s both countries had surpassed the United States. In non-defense R&D, Japan and Germany spent 50 percent more as a percentage of GDP in 1988.[9]

Second, the needs of the defense and civilian markets have diverged and there is widespread agreement that spinoffs from the defense sector provide less commercial benefit than they did in the 1950s and 1960s. For example, while defense procurement used to drive the semiconductor market, today's microprocessors and memory chips are driven by the commercial markets, especially consumer products. In contrast to the past, military systems often use components that are exceedingly specialized and several generations behind.

Third, other nations have not only spent more on R&D, but have

developed better capabilities for commercializing technology. They have developed manufacturing systems that are more flexible and efficient, training systems that produce a more highly skilled workforce, and economic systems that enable industry to finance long-term investments. In short, our competitors have become skilled at generating and applying their own advances in technology, while capturing the benefits of US R&D and speeding its application in industry.

In retrospect, US postwar policy, with its focus on science and defense technology, contained only some of the elements necessary for an effective innovation system, but its gaps in generic industrial R&D and support for commercialization and diffusion were masked by our overwhelming lead over foreign competitors. Now Europe and Japan have recovered economically and our relative weaknesses are increasingly apparent.

US policy and industry practices have begun to respond to the changing international environment. Companies are focusing more and more on manufacturing quality and on getting technology to the market quickly. In 1990, the Bush Administration issued a first ever US Technology Policy and both the Administration and the Congress have supported increases in civilian applied technology programs such as the Advanced Technology Program. Antitrust law was modified through the National Cooperative Research Act in 1984 to permit greater industry cooperation in R&D, and the Federal Technology Transfer Act of 1986 established a framework for Cooperative Research and Development Agreements between industry and government researchers.

There are indications that these changes are beginning to have a positive effect. The US high technology trade balance has begun to recover from its all time low in 1986.[10] In addition, US semiconductors makers appear to have reversed their long slide in market share.

For the most part, however, the improvements in private sector performance have been spotty and inconsistent. Many companies continue to underinvest in R&D and training and underemphasize the importance of manufacturing and quality. Change in government policy has also been too little, too slow, and too uncoordinated to have an across-the-board impact on industrial competitiveness. Cooperation between the Administration and the Congress has been limited, often resulting in Congressional initiatives that were opposed by the Administration, or Administration initiatives that were not fully funded by the Congress.

We can do much better. With the end of the Cold War there is an unprecedented opportunity to rethink our approach to technology and forge a new national strategy that mobilizes the technological capabilities and great strengths of the US towards priorities of economic competition and gets industry, academia, labor, and government working together to enhance the contribution of technology to the national welfare.

Strategic Objectives

We have identified six strategic objectives to guide our national technology strategy. They are as follows:

▶ ***Lead in technologies critical to economic competitiveness in the 21st century.*** Research, development, and commercialization of promising technologies are critical to creating new industries and improving the productivity in existing industries. Although the US may not be able to achieve its dominance of previous decades, leadership in each key area of technology must be the goal. Any lesser goal guarantees failure.

▶ ***Make technology policy a national focus and an integral part of the country's economic policy.*** Technology policy must be given higher priority and be jointly developed and managed with economic policy to achieve leadership in technology and to enhance the contribution of technology to the national welfare.

▶ ***Improve the ability of US industry to absorb and commercialize technology.*** The US is the world leader in basic research but must

more fully profit from its inventions and from knowledge generated in other parts of the world. Today, technical information flows quickly across national boundaries, and it is the ability to apply technical knowledge that generates benefits. Industry must improve its ability to absorb and commercialize technology, and US technology policy needs to focus on factors that affect industry's ability to do so.

▶ ***Bring industry, labor, federal and state governments, and academia together to improve the contribution of technology to the national welfare.*** To improve US performance in the development and application of technology requires more effective use of the nation's technical institutions and resources. US technology strategy must help US institutions overcome their historical aversion to cooperation and support joint programs and plans that use the resources and capabilities of each sector to improve technological and economic performance.

▶ ***Maintain and build upon the national technology base of facilities, institutions, and human resources.*** A strong domestic technology base of human resources, technically capable small manufacturing companies, research and testing facilities, and human and electronic networks will help US industry develop and apply technologies. Enhancing these capabilities is essential to making the United States a more attractive place to conduct R&D and high wage manufacturing.

▶ ***Enhance US access to international science and technology and ensure equitable cooperation.*** The US has much to gain from improving access to worldwide sources of technology and establishing more equitable financing of large international science and engineering projects. This will require measures to assure that the US is given equal treatment by other nations. In addition, it will require that the government, universities and private sector significantly strengthen their ability to structure international projects that meet US interests.

III. Discussion and Recommendations

The remainder of this report will focus on the recommendations needed to achieve the strategic objectives highlighted above. Collectively, these recommendations make up the national technology strategy. They are presented in four major categories:

1. Increasing national investment in civilian and dual-use R&D in areas critical to competitiveness.

2. Promoting commercialization of technology in capital intensive areas of long-term strategic importance.

3. Creating a world class technology base of human resources, manufacturing capabilities, experimental facilities, and networks.

4. Organizing US institutions for results.

A background discussion of each major recommendation is presented below, followed in each case by specific actions that should be taken to assure effective implementation. The changes in funding required for these recommendations are summarized in the Technology Reform Budget presented in the final section of the report.

1. Increasing National Investment in Civilian and Dual-Use R&D

US investment in civilian R&D, which is generally acknowledged as contributing the most to economic competitiveness, is currently far below that of its leading foreign competitors. In 1989, the nation as a whole invested only 1.9 percent of GDP on non-defense R&D, as compared to 3.0 percent in Japan and 2.8 percent West Germany (see Figure 2).[11] In terms of federally funded R&D, in 1988 only 0.2 percent of government R&D funds were intended to promote industrial development, compared with percentages ranging from 4 to 20 percent in other industrialized countries.[12] This is because the majority of US federal funding is directed towards basic research, defense, and specialized agency missions. Even in technology areas where government and industry needs coincide, cooperation is limited, partly due to a traditional mistrust between government and industry, and also because promoting industrial competitiveness has not been an explicit mission of government agencies (with the exception of the National Institute of Standards and Technology [NIST]).

Public policy should aim to redirect federal R&D capabilities towards industrial needs and ensure that national investment in civilian and dual-use R&D, as a percentage of GDP, is competitive with that of other leading industrial nations. This may be accomplished in a number of different ways, including: (a) using financial incentives to stimulate private sector R&D; (b) increasing government support for civilian and dual-use R&D with technical resources made available through defense reductions; and (c) focusing federal R&D in the areas that are most critical for improved economic performance.

A. Stimulating Private Sector R&D

Industry-funded R&D, which most accurately reflects the needs of the private sector, is significantly lower as a percentage of GDP than that of any of our major competitors (see

Figure 3). Although investment decisions made at the firm level are largely beyond the control of government, public policy can help create a favorable investment climate and provide incentives, such as tax credits, to increase the level of R&D financed by the private sector. Federal policies to stimulate private R&D are frequently justified on the basis that private R&D creates spillovers to other firms and consumers. We believe that in addition to general incentives for private R&D, additional targeted incentives are justified in areas where the spillovers to society are particularly large, such as industry sponsored academic research and precompetitive R&D consortia.

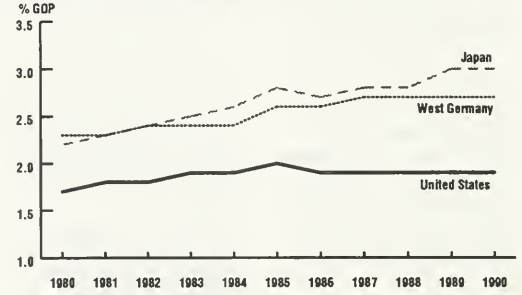
Recommendations

▶ ***Make the incremental R&D tax credit permanent.*** The R&D tax credit should be made permanent so companies can depend on it on a long-term basis and incorporate it into their strategic plans.

▶ ***Extend the credit to include process R&D on existing products.*** The R&D tax credit has previously included R&D on processes before the first article of production, but not R&D on improved processes for existing products. This is essential since continuous engineering of products and processes is as important to competitiveness as technological breakthroughs.

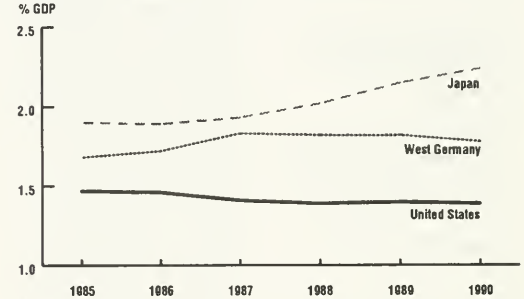
▶ ***Establish an additional 25 percent tax credit for industry sponsored academic R&D.*** The benefits of academic research are likely to be quite broad. The research results are typically disseminated widely and the benefits do not accrue only to the original investor. In addition, students are educated in the process of doing the research.

Figure 2
International Comparison of Non-Defense R&D



SOURCE National Science Board

Figure 3
International Comparison of Industry-Funded R&D



SOURCE OECD

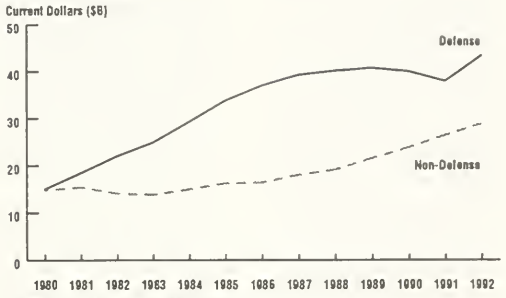
This credit will also help build stronger industry-university linkages.

▶ ***Establish a 10 percent tax credit for the first two years of new R&D consortia, limited to those registered under the National Cooperative Research Act (NCRA) of 1984.*** This tax credit will help overcome industry's cultural resistance to consortia due to historical antitrust barriers.

B. Using Technical Resources From Defense Reductions to Build Civilian and Dual-Use R&D

For the past decade, the majority of government R&D has been allocated towards defense needs (see Figure 4). The end of the cold war offers an opportunity to reallocate government R&D towards new priorities of economic competition. Defense reductions, including planned cancellations of major defense systems, will free up significant resources which may be applied to the development of civilian and dual-use technologies. With these reductions, long range defense research and exploratory development (6.1, 6.2, and 6.3 in defense terminology) should be kept strong. R&D in these categories is necessary to maintain leadership in defense technology and is the part of defense R&D most likely to benefit the civilian economy. Moreover, because commercial industry now leads in many technologies critical to defense applications, greater funding of civilian applied R&D should also help sustain strong defense capabilities. However, for defense needs to be met, substantially increased efforts are needed to integrate the defense and industrial technology bases.[13]

Figure 4
Federal R&D Funding



SOURCE: National Science Board, Science and Engineering Indicators, 1991

Recommendations

▶ ***Maintain US government R&D at least at present levels while shifting resources from defense to civilian goals.*** As a first step, balance federal support for defense and civilian R&D by shifting $7.2 billion from defense production and R&D to priority civilian and dual-use research and technology programs (see the Technology Reform Budget in Section IV below).

C. Focusing Federal R&D to Improve Economic Performance

The area of R&D that needs the most attention by the federal government is the area that falls between basic research and product development. This area is sometimes referred to as precompetitive or generic R&D and includes R&D to improve manufacturing processes to provide for higher productivity and quality, and investment in pathbreaking technologies that create new industries and strategic technologies that are essential for continued competitiveness of existing industries.[14]

Much R&D in this area is beyond the capability and affordability of individual firms and falls between the traditional roles of industry, academia, and government. As a result, cooperative programs that involve joint funding and sharing of facilities, equipment and expertise between industry, government and universities are necessary to fill this

gap. Industrial participation will help ensure that the R&D is relevant to industry needs and is disciplined by market forces.

In order to make programs in these areas wholly effective, cultural changes are necessary in industry, government, and universities. The private sector needs to eliminate the "not-invented-here" syndrome that plagues many companies. In addition, companies need to develop ways to use cooperative projects in support of their own strategic goals. Government agencies need to recognize industrial competitiveness as a national mission, as well as acknowledge industry-government cooperation as a valuable means of achieving agency mission objectives. In most areas, whether improving health care, education, transportation, energy efficiency, national security, or the environment, government missions can be accomplished more effectively through close cooperation with the private sector.

Universities, which serve as a key research arm for industry and government, must view R&D with industrial applications as equally deserving of their research and teaching efforts as the more traditional science and engineering disciplines. Manufacturing, management of technology, quality, and design, are areas of high national need that also pose exciting intellectual challenges. Both research and education can be made more relevant to industry and more rewarding to students and faculty with stronger links to these areas. Government sponsored academic R&D should give priority to fundamental research and education, and should strive not only to create knowledge, but also to diffuse knowledge throughout the science and technology enterprise.

During the past decade, several federal programs have been established to support the technology needs of industry, including the Advanced Technology Program (ATP) in NIST, and the National Science Foundation's (NSF) Engineering Research Centers (ERCs) and Industry-University Cooperative R&D Centers (I/UCRCs). In addition, legislation, such as that authorizing industry-government Cooperative R&D Agreements (CRADAs), has established a framework for cooperation between industry and the national labs. Cultural barriers, however, still serve as a barrier to much effective cooperation. The recommendations outlined below will increase R&D in these priority areas while helping to build a new culture of cooperation.

Recommendations

▶ ***Expand the Advanced Technology Program in the Department of Commerce to $750 million/year in five years.*** The ATP has established a credible competitive process for supporting precompetitive, cost-shared industrial R&D. The number and quality of applications indicate additional funding could be well spent. As is currently the practice, this program should support consortia.

▶ ***Increase the number of NSF ERCs to 100, and continue to support NSF's I/UCRCs.*** These centers are vital to building industry-university cooperation and to encouraging a systems approach to engineering problems.

▶ ***Strengthen NIST Intramural R&D.*** NIST core measurement science programs are important to industry and NIST has a good record in working cooperatively with industry.

▶ ***Increase funding and private sector participation in the Federal Coordinating Council for Engineering, Science and Technology (FCCSET) technology initiatives.*** The current initiatives in High Performance Computing and Communications, Advanced Materials and Processing, and Biotechnology, and the pending initiative in Advanced Manufacturing, are first efforts to coordinate and improve federal R&D in critical areas of technology. Increases should go to areas of highest need identified by the private sector.

▶ ***Reallocate, as a start, 10 percent of the R&D of the Department of Energy (DOE) and the National Aeronautics and Space Agency (NASA) labs to support jointly planned and funded industry/government R&D.***[15] This amount should be increased to 20 percent in three years. Metrics should be establish to evaluate the effectiveness

of industry-laboratory cooperation, and if results are insufficient, funds should be redirected. Concurrently, federal labs should continue efforts to establish model CRADAs that facilitate industry/lab cooperation, and give directors of government-owned contractor-operated laboratories authority to negotiate, sign, execute, and fund cooperative R&D ventures with industry.

▶ ***Increase support for National Institutes of Health (NIH) cooperative programs with industry.*** R&D that will facilitate the commercialization of new drugs and medical devices, such as R&D on methods of evaluating clinical trials, is of particular importance to the private sector. NIH should seek more private sector input from industry in setting its priorities.

▶ ***Increase support for the Defense Advanced Research Projects Agency (DARPA) dual-use technology development.*** DARPA has an outstanding track record for developing technologies that are important to both civilian and defense sectors, and should be kept strong even as defense budgets decline.

2. Promoting Commercialization of Strategic Technology

As has been documented in many previous studies,[16] commercialization is a key weak link in the US technology enterprise. The US is a source of many inventions, but other nations often lead in apply new technologies to commercial advantage. Computer memory chips and robotics are prime examples of US-invented technologies that are now dominated by foreign competitors.

There is substantial evidence that US industry underinvests in many activities which are essential for effective commercialization of technology. As mentioned before, US industry spends less on R&D as a percentage of GDP than Japan and Germany, and invests less in workforce training. In addition, US investment in plant and equipment, which is essential to applying R&D, is now only half of Japanese investment as a share of GDP (see Figure 5).[17]

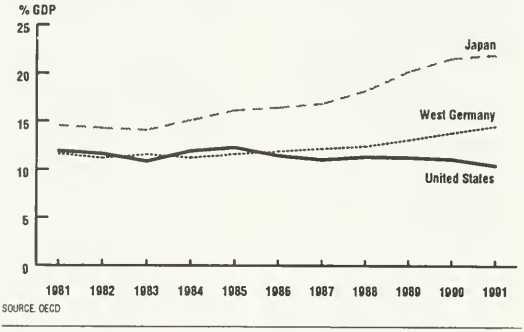
Commercialization problems plague both large and small companies. Many large companies invest less than foreign competitors in continuous improvement of their core technologies, thus jeopardizing future competitiveness.[18] Entrepreneurs and small companies with exciting new technologies often have trouble obtaining the financing needed to commercialize products and grow their business, and frequently end up licensing their technology to more patient and deep-pocketed foreign companies.[19]

There has been widespread agreement on the seriousness of the problems, but little consensus regarding the appropriate solutions. There are several reasons why the solutions are elusive. First, applying technology for commercial advantage is primarily the responsibility of individual firms and is largely under their control. Firms differ considerably in their ability to pull technology from their laboratories or other sources and apply it to new products or processes, and there is much firms can do to improve this process.[20] Federal influence on these activities is only indirect.

Second, many of the causes of US underinvestment relative to its competitors may be attributed to the macroeconomic environment or to fundamental differences in the capital allocation systems of the US and its competitors.[21]

Third, the problems are not uniform across all of industry. Some industries, such as pharmaceuticals and aerospace, invest as much as or more than their competitors, while many electronics and manufacturing industries invest less. There are important differences in industry structure, technological intensity and maturity, intellectual property protection, and the impact of government policies and programs across industries that affect their ability to invest and succeed in technology.[22] Innovation in the pharmaceutical industry, for example, where there is strong intellectual property protection and where government basic research, drug regulation and drug purchasing policies strongly influence drug development, is quite different from innovation in the machine tool

Figure 5
International Comparison of Investment in Plant and Equipment



SOURCE: OECD

industry, which has none of these characteristics. Weak industry-government cooperation and the low priority given to federal assessment of US industrial competitiveness have also hindered the development of effective sector-specific policies.

Finally, the history of US government involvement in aiding the commercialization of technology has been mixed. On the one hand, there have been notable successes, such as in agriculture or in defense support of computer, semiconductor, and aerospace technologies. On the other hand, there have been notable failures in synthetic fuels, nuclear breeder reactors, and supersonic transports.[23] The threat of political pressure either pushing funds toward weak projects or making it impossible to kill bad projects is quite real.

As government support moves toward commercialization, it is hard to avoid making choices that will benefit a particular firm, technology, or industry over others and there are no irrefutable ways to decide which areas and projects warrant government investment and which do not. For this reason, the Subcouncil firmly believes that government support should focus first and foremost on the infrastructure of technology (institutions, facilities, education, etc.), then on widely applicable technologies, and finally on strategic industries. Government should avoid policies and programs that target individual firms.

In view of these complexities, there is no single mechanism that will address all aspects of the commercialization problem. There are several ways, however, that the federal government can encourage private investment in technology. Investments can be made more attractive by increasing the reward, such as through improved intellectual property protection or the opening of foreign markets. They can also be made more attractive through lowering both the technical and market risk, or by lowering the cost of financing.

A. Lowering Technical Risk

Technical risk can be reduced through federal support for research, development, testing, or demonstration of technologies. Many of the actions recommended in the previous section, such as increasing government-industry cooperative R&D and R&D tax credits, will help lower technical risk to industry. In addition, particularly where the technology is to support a government mission, it may be appropriate for the government to take the R&D to the demonstration stage to reduce the risk and facilitate commercialization. Current and future cross-agency technology initiatives, such as the Advanced Materials and Processing Program and the forthcoming initiative on Advanced Manufacturing, should, in addition to their current focus on R&D, develop plans that address the commercialization of technology.

In areas where there are strong mutual interests, joint industry/

government projects can be a useful mechanism for developing and demonstrating technologies. The history of previous projects, however, suggests the following guidelines:

▶ Projects should be developed with private sector participation and cost sharing to ensure industry relevance.
▶ Projects should have clear goals, a definitive time frame, and mutually agreed upon criteria for success.
▶ Projects should be reviewed periodically, and reauthorized or canceled depending on their progress.

In addition, whenever possible, government/industry projects should be designed as the initial stage of an evolutionary development program that calls for increased private leadership and investment as the program matures. This will help prevent resources from being wasted on stand-alone demonstration projects that lack a long-term strategic vision and adequate commercial potential or on programs that are too narrow to serve the nation as a whole.

Cooperation among firms can also reduce the risk born by individual companies. Industry's use of R&D consortia has greatly increased since the National Cooperative Research Act of 1984 reduced antitrust barriers to cooperative R&D. The Subcouncil supports further efforts to expand cooperative R&D through the R&D tax credits described in the previous section, and through direct government funding of R&D consortia, such as SEMATECH or the Advanced Battery Consortium.

In addition to cooperative R&D, collaboration in manufacturing will be increasingly necessary in some capital intensive industries as high costs and long lead times make development of new manufacturing facilities prohibitively expensive and risky for individual firms. Joint manufacturing ventures are currently not provided any antitrust exemption under the NCRA.

Recommendations

▶ ***Establish government-industry-university pilot development and demonstration projects in technology areas of mutual benefit.*** Examples where joint projects both help achieve government missions and can support technology commercialization include:

- *Communications and Networking.* An expanded version of the Administration's High Performance Computing and Communications Initiative (HPCCI), could provide the foundation for a new national communications infrastructure to meet a wide variety of social and economic needs, including improved delivery of health care and services; increased educational opportunities; and greater access to public and private databases. These networks can improve the transmission of scientific and technical information and information necessary for companies to work together in design and manufacturing. The creation of this infrastructure would also open up or expand the market for many technologies. The Computer Systems Policy Project's (CSPP) proposed national information infrastructure program is a good model for similar government/private sector initiatives in other areas.
- *Environmental Technologies.* Virtually all manufacturing industries are striving to develop processes that minimize pollution and environmentally benign products. The development and demonstration of environmentally conscious manufacturing has the potential to greatly reduce the cost of meeting environmental requirements while simultaneously improving competitiveness and helping companies position themselves to take advantage of growing markets for environmentally conscious products.
- *More Efficient Transportation Systems.* The federal government, working with the states and industry, can encourage the use of advanced technologies to improve the efficiency of transportation systems. Examples include intelligent vehicle/highway systems (IVHS) and high speed rail. The federal role is to fund research and to stimulate the development of a strategic plan that will allow different groups to work together and will allow the systems to

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evolve in ways that will contribute to transportation safety, economy, and capacity.

▶ ***Extend the provisions of the National Cooperative Research Act to provide limited antitrust exemption for US-based joint production ventures.*** Expanding NCRA to eliminate the threat of treble damages to joint production consortia would encourage cooperative industrial investment in these areas.

B. Reducing Market Risk

The government can also promote commercialization by reducing the market risk for goods using leading edge technologies. Many of the areas where the United States has had world leadership, such as electronics, medical devices, and pharmaceuticals, are those in which the federal government has both funded R&D and stimulated the market for the technology.

Defense has historically been the primary driver of government funded R&D and procurement of new technologies. Although the role of defense is declining, the government still has many opportunities to be a smart "first customer" of commercial technologies through purchases for internal use, government missions and national infrastructure projects. This government "pull" can serve as a catalyst for industrial commercialization by testing and demonstrating leading edge technologies and by helping industry gain the experience needed for scale-up and manufacturing of commercial products. The government can also promote the development and dissemination of standards that will help reduce uncertainty and help markets to grow, and establish federal regulations which provide markets for critical leading edge technologies, particularly in environmental areas.

Many of the joint projects presented in the previous section work to expand markets for new technologies in their targeted areas. The following recommendations will help federal procurement stimulate markets for leading edge technologies in many other areas.

Recommendations

▶ ***Modify procurement regulations for agency purchases or agency contracted development to give priority to commercial specifications and products.*** For example, harmonize military specifications with civilian specifications and simplify government accounting requirements.[24]

▶ ***Evaluate selection criteria for bids to ninimize life-cycle cost rather than acquisition cost.*** This should include public costs associated with environmental impacts of end of life disposal, process wastes, and costs to public health and safety.

▶ ***Base government procurement on performance standards and allow competitive awards to be made to the most cost effective realization of stated performance objectives.*** This will encourage innovation and reduce cost.

▶ ***Experiment with agency procurement budgets to allow them to flexibly procure leading edge technologies.*** A modest percentage of each agency's procurement budget should be exempt from many procurement regulations for the purpose of demonstrating innovative technology.

C. Lowering the Cost of Financing

Finally, the government can lower the cost of financing for technology projects, either through general mechanisms, such as R&D or equipment tax credits, or through more targeted mechanisms such as low cost loans or equity investments in specific projects. As described in previous sections, the Subcouncil supports several general mechanisms to lower the cost of financing technology projects. The appeal of the more targeted mechanisms is that they can potentially have a much larger impact in specific areas at a lower cost than the general mechanisms.

The Subcouncil reviewed several existing proposals to finance technology, most notably the Civilian Technology Corporation (CTC) proposed by the National Academy of Science.[25] This would be a quasi-governmental corporation intended to fund "pre-commercial R&D." Although this proposal has merit, the Subcouncil believes that the more serious problem is downstream of pre-commercial R&D—in the investments needed to take the R&D

to the market. In addition, the recently established and growing Advanced Technology Program in NIST could evolve into an adequate mechanism for supporting pre-commercial R&D. It also presents fewer organizational issues than would creating a new quasi-governmental corporation.

To focus specifically on financing the commercialization of promising technologies, the Subcouncil considered several other alternatives. The goal is to support projects that have large public benefits but are not attractive for private investors because of low returns. Two criteria that guided the Subcouncil were that government mechanisms to support commercialization should not (a) displace investments that private markets would otherwise fund, or (b) subsidize projects with low public and private returns that private markets would correctly reject.

The Subcouncil considered two approaches to solve these problems. One approach is to give selected technology agencies the authority to participate in the commercialization of some of their R&D projects. In a similar manner, the current Small Business Innovative Research (SBIR) program can be extended to include an additional phase for commercialization. There are a number of advantages to this approach. First, the work would already be within the federal agency's mission, justifying continued federal support. In addition, the agencies are knowledgeable about the technological opportunities and the progress made in their R&D efforts, putting them in a good position to select the most promising technologies for commercialization. Finally, some agencies, such as DARPA, have demonstrated competence in facilitating the commercialization of technologies. Other agencies would need to build business expertise in their in-house staff, or rely on advice from outside experts in order to effectively manage these programs.

The second approach is to set up a mechanism that operates through private markets to lower financing costs. For example, the government could establish a Technology Bank to support industry commercialization of technology in capital intensive, high risk areas. Such a bank would work through existing financial institutions to share in the equity, loan, or loan guarantee financing for testing, demonstrations, systems integration and scale-up. This idea merits further exploration. The US should continue to investigate this and other approaches for filling the void for capital in the transition from R&D through the early stages of the commercialization process.

Recommendations

▶ ***Authorize DARPA, ATP, and NIH to purchase equity or extend loans/loan guarantees to help support commercialization of promising technologies developed through their R&D contracts.*** In addition to the payback on loans, the federal government should have a modest financial interest in the future of the project.

▶ ***Add an additional phase to the SBIR program to provide loans for commercialization.*** In addition to the current grants for R&D, an additional phase of the SBIR program could facilitate the commercialization of promising technologies.

3. Creating A World Class Technology Base

Today, many elements of technology flow easily across national boundaries and the capacity for a nation to quickly absorb and disseminate technology is a key contributor to a nations' ability to benefit from advances in technology. To ensure that the United States can take advantage of this flow of information, it is essential that (a) there are organizations that can receive and use the technology; e.g. it is important that R&D and high value-added manufacturing takes place in the United States; and (b) that there are effective mechanisms to diffuse the information. This requires that the United States provides a strong technology foundation for these activities, consisting of a highly skilled workforce, research and testing facilities, human and electronic networks, and technically capable manufacturing companies.

A. Strengthening Human Resources

The knowledge, skills and experience of the workforce are at the core of all successful technology development and commercialization. A well-educated labor pool helps the nation attract technology intensive industries that develop technology, provide high wage jobs, and contribute significantly to economic growth and standard of living. The federal government, states, industry, labor, and academia need to join forces to implement a comprehensive national education system that equips the American people with basic skills, offers extensive opportunities for higher education and provides continuing training to keep the workforce globally competitive.

The US possesses a world class university system, but it has become increasingly evident that our institutions of higher education do not effectively emphasize the most pressing needs of industry, such as process engineering and manufacturing management. NSF's Engineering Education Coalitions represent a start, but additional policies and programs to support core curriculum changes, fellowships for manufacturing engineering, increased internships within industrial production facilities are needed to produce a supply of engineers and scientists that are in tune with current industrial needs and problems.

The US also needs to develop a national apprenticeship program to train non-college bound youth in technical vocations that are relevant to industry. It is imperative that the private sector participate in the development and implementation of this program to ensure that it focuses on skills that are needed by industry.

Workforce training and continuing education is another relatively weak area for the US. Most industrial training programs in the US target professional employees, not the general workforce. When training is provided to these individuals, it is typically job specific instead of built around transferrable skills. Companies are also forced to allocate valuable training resources to remedy failures in K-12 education, including illiteracy and inadequate math and technical skills. Training tax credits, or "pay-or-play" training programs can give industry added incentive to invest in worker training, but to be wholly effective, they must be coupled with programs and policies which ensure that K-12 education produces a competent workforce with basic skills that company training programs can build upon.

Federal and state extension programs can be another mechanism for providing workforce training, but at present, most manufacturing technology assistance programs do not have the resources to effectively take on this responsibility.[26] Integrating industrial extension and training is an especially important goal since modernizing a production facility or service operation with state-of-the-art technologies without providing corresponding worker training programs is not likely to have much of an impact on productivity or competitiveness.

The Education Subcouncil and the Training Subcouncil have developed comprehensive recommendations on education and training. The following recommendations pertain specifically to the jurisdiction of this Subcouncil.

Recommendations

▶ ***Modify undergraduate and graduate education in science and engineering to emphasize process engineering and manufacturing management.*** The National Science Foundation should:

- Fund curriculum development for 20 to 30 graduate programs that combine concepts from engineering and management in the training of future managers. Strong industry involvement should be a qualifying condition for such funds.
- Fund a fellowship program for graduate and post-doctoral scientists and engineers to spend time within industry, university and government labs to reduce cultural barriers and build cooperation.
- Establish a fellowship program to encourage movement of industrial scientists and engineers to academia.

B. Increasing Federal Support for Industry-Relevant R&D Facilities

Experimental facilities and information networks allow leading edge research and development to be conducted in the United States and enable the rapid sharing of technical information. Individual firms generally lack the expertise and financial resources to build and utilize experimental facilities and instrumentation, such as synchrotron light sources, the cold neutron source, high magnetic field laboratories, and computer networks, such as Internet.

Greater emphasis should be placed on increasing industry use of government owned and operated facilities and networks and assuring that industry has easy access to the knowledge, tools and instrumentation it needs to effectively absorb and apply technology. Examples of appropriate programs in this area, besides the facilities and instrumentation mentioned above, include the initiative for a national information infrastructure. Of particular importance are networks that will allow manufacturers to exchange technical information on products and processes.

Recommendations

▶ ***Improve access to existing government-owned facilities and equipment, perhaps by allocating a percentage of their use to the private sector, giving priority to small businesses.***

▶ ***Give priority to establishing information networks for the exchange of technical and manufacturing information.***

C. Strengthening the Manufacturing Base

Technically capable manufacturing companies are an essential part of a strong technology base. Small manufacturers are especially important, since they act as suppliers and subcontractors to larger manufacturers and have been a source of innovation and in the United States. Many small manufacturing firms have been slow to introduce new technologies, improved workforce training, and best manufacturing practices into their organizations.[27] The primary causes are a lack of time, expertise and financing.

Extension services offer a vital opportunity to help small and medium sized manufacturers modernize their organizations and operations. A number of states have extension services, modeled after that of the Department of Agriculture, to help these firms better use new technologies and practices. At the federal level, the National Institute of Standards and Technology now funds seven Manufacturing Technology Centers at various sites around the country with a combined budget of $15 million in FY92. These activities are helpful, yet they are much smaller in scope than similar efforts in Japan (which has 170 prefectural technology centers funded at approximately $500 million per year), Europe, or in agriculture in the United States. Expanding US manufacturing extension programs to give more manufacturing firms easy access to new technologies, testing facilities, quality management and training programs will help improve their competitiveness as well as the competitiveness of their customers. Federal initiatives should build on and support state extension programs.

Recommendations

▶ ***Strengthen and expand federal and state manufacturing extension services to provide comprehensive regional service and achieve national coverage.*** The federal government should provide services and funding of $300 million to build on and support existing state and local extension programs. This amount should be matched by state and local governments.

▶ ***Provide incentives for private sector investment in manufacturing equipment.*** An investment credit for plant and equipment should be established (refer to the Manufacturing Subcouncil Report for details on the credit).

4. Organizing US Institutions for Results

For a US technology strategy to be successful, it must be developed in a cohesive fashion with input from the private sector and the states, and must be executed effectively. This is a difficult challenge because US technology resources and decision-making are dispersed widely throughout the federal government, industry, the states, and universities. Economic, trade, regulatory, and education policies that affect technology development are further dispersed. Improvements are needed in the technology policy-making and execution in the executive branch, in the Congress, and in federal-state coordination.

A. Improving Technology Policy Development and Implementation in the Executive Branch

Technology programs are dispersed throughout a large number of agencies, of which only one, the Department of Commerce, has been promoting competitiveness as a primary mission. The White House Office of Science and Technology Policy (OSTP) has been the focal point for technology policy making in the Executive Branch. The Federal Coordinating Council on Science, Engineering, and Technology (FCCSET), which operates under its auspices, has been the main mechanism for coordinating the technology activities in federal agencies in recent years.

There are several problems with the current executive branch technology policy making and implementation. First, technology policy and economic policy are not well integrated. The OSTP historically has not been a full player in economic policy making, and has had a difficult time holding its own vis-á-vis the Office of Management and Budget and the Council of Economic Advisors. In addition OSTP has largely confined itself to R&D issues, and has not addressed other policy issues that affect the US success in technology, such as economic, regulatory, trade, and procurement policy.

Second, government has had difficulty getting industry experts to fill key science and technology positions,[28] and overall, private sector input into policy making has been limited. Input into OSTP has been largely through the President's Council of Advisers on Science and Technology (PCAST), which has not had enough visibility to be wholly effective. In addition, the Council is too small and has had too broad a scope—addressing issues from arms control to the environment — to provide an adequate input on technology policy and competitiveness. The FCCSET process also lacks input from and continuous discussion with the private sector. Regulations governing industry participation in federal advisory committees and conflict of interest among federal employees also have limited broader industry-government cooperation and interaction in technology policy. As a result, government R&D and technology programs have largely been isolated from industrial needs.

Third, the execution of multi-agency programs has been weak. OSTP through FCCSET has developed interagency initiatives in key areas of technology, including high performance computing and communications, advanced materials and processing, biotechnology, and advanced manufacturing, but in its current form can not effectively implement or managing these programs. Participation in the FCCSET process is voluntary by the agencies, and some agencies are reluctant to participate because they fear losing control over their budget.

Fourth, the ability to match technology policies with an understanding of the needs and capabilities of specific industrial sectors has been weak. The federal government needs a better mechanism to interact with and analyze industry, and a better means of developing international science and technology agreements that benefit US economic interests. It also needs a better mechanism to monitor, analyze, and disseminate technical information from overseas sources. The Technology Administration in the Department of Commerce is an appropriate place for these functions, but has not been funded at an adequate level and has

not demonstrated that it can consistently perform first rate independent analysis of industries.

One approach to addressing these problems is to create a new agency or reorganize existing agencies to focus on civilian technology. The history of such major institutional changes, however, suggests that they require much time and political capital, and take years to work effectively. Although we did not rule out the need for such reorganization, we focused more on actions that could be quickly implemented. These include strengthening and shifting the focus of existing organizations, and strengthening the linkages between organizations.

Recommendations

▶ ***Create a White House Council on Science, Technology, and Environmental Policy, to be chaired by the Vice President, to set directions and policy.*** Members should include Secretaries and Agency Heads of the Department of Commerce, the Department of Energy, the Department of Defense, Health and Human Services, the National Science Foundation, the National Aeronautics and Space Agency, the Office of Science and Technology Policy, and the Office of Management and Budget.

▶ ***Strengthen linkages between OSTP and the Council of Economic Advisors.*** Staff from these organizations should work together to develop the broad outlines of a civilian technology policy that is integrated into economic policy.

▶ ***Strengthen OSTP.*** The scope of OSTP should be expanded to include manufacturing. In addition, the FCCSET planning and budget process should be strengthened to give it the authority and capability to manage cross-agency presidential initiatives in a matrix management method.

▶ ***Enlarge PCAST and give it the authority to create subcouncils to get private sector input on detailed technology problems and issues.***

▶ ***Give PCAST responsibility for conducting a joint industry, academic, and government prioritization of the R&D budget.***

▶ ***Strengthen the Technology Administration in the Department of Commerce.*** The Technology Administration should be made the focal point for: (a) analyzing industries and their technological needs; (b) gathering, analyzing, and disseminating US and international technical information; and (c) facilitating domestic and international technological cooperation.

B. Focusing Congress on Technology

Within Congress, the federal R&D budget is handled by many authorizing committees and appropriations subcommittees, making it difficult to establish a cohesive technology strategy or to set priorities among R&D spending. The House Science, Space, and Technology Committee, for example, which has is the broadest authorization jurisdiction on technology issues, lacks jurisdiction over defense and health R&D, which is over two thirds of the R&D budget. In appropriation subcommittees, science and technology programs are not addressed in a cohesive way. The National Science Foundation budget, for example, competes primarily with housing, not other R&D programs, for funds. There is a need to establish a better process in the Congress to make decisions on technology and competitiveness. Although our Subcouncil did not reach any major recommendations on this issue and other groups are examining Congressional organization in more detail, the options recommended on the following page should be considered.

Recommendations

▶ ***Realign appropriation subcommittees to bring more key technology programs under a smaller number of subcommittees.*** This will allow for better coordination of technology programs and make it easier to establish R&D priorities.

▶ ***Establish a process for members of authorizing and appropriation committees to examine the federal R&D budget as a whole to encourage informed trade-offs among competing technology programs.*** A joint committee, or joint hearings between committees are options.

C. Improving Federal-State Coordination

Many key technology activities are funded and performed by the states. States have played a leading role in diffusing technology to small companies, establishing incubators for new technology companies, and developing regional strengths through university research, training programs, and other economic development programs.[29] There is a need for greater federal-state coordination in developing and executing technology policy.

Recommendations

- ▶ *States should work together to identify and coordinate their technology needs.*
- ▶ *States should communicate their needs to the federal government, possibly through the National Governors Association.*
- ▶ *States should work with local industry to determine local technology infrastructure needs.*

IV. The Technology Reform Budget

We believe that the recommendations described above can be implemented through reprioritizing rather than augmenting federal spending on science and technology. This is particularly important given the overall priority of reducing the federal budget deficit. In general, these budget changes try to accomplish the following:

- Balance defense and civilian R&D. A 50 percent split will not short-change defense and will increase civilian technology programs by approximately $7.2 billion.
- Use the reallocated dollars to fund civilian technology programs that are less than optimally funded.
- Bolster agencies and departments that have responsibility for generic technology critical to economic competitiveness.

Our detailed recommendations are presented in Tables 1, 2 and 3. A brief description of each table is presented below.

Table 1

Table 1 presents an overview of the proposed shift in federal funding from defense to civilian technology programs. It also includes the total funding requirements for each of the four major categories of recommendations:

(I) Industry-driven R&D;
(II) Commercialization;
(III) Technology Base; and
(IV) Organization.

All figures are in constant 1992 dollars. "Industry-driven R&D" includes programs that directly support private sector development of technology (e.g., ATP), as well as support for areas where industry needs and agency missions coincide. "Commercialization" consists of policies to encourage government procurement of technology, financing for commercialization, and pilot projects to develop and demonstrate commercially relevant technologies. "The Technology Base" includes programs and policies to strengthen

Table 1
Technology Reform Budget
(in millions of 1992 dollars)

Overview

	FY92 Base	FY95 Proposed	Change
Defense/Civilian Balance			
Defense R&D	42,700	35,500	-7,200
Civilian R&D	28,300	35,500	7,200
Total	**71,000**	**71,000**	**0**
Priority Enhancement			
Industry-Driven R&D	17880	23130	5250
Commercialization	320	1920	1600
Infrastructure	65	405	340
Organization	9	19	10
Total Change	**18274**	**25474**	**7200**

Table 2
Detailed Budget

	FY92 Base	FY95 Proposed	Change
I. Industry-Driven R&D			
ATP	50	750	700
NIST Intramural	200	400	200
NSF's ERCs	50	300	250
Technology Initiatives:	7280	9780	2500
- Computing	*560*	*1060*	*500*
- AMPP	*1660*	*2160*	*500*
- Biotechnology	*3760*	*4260*	*500*
- Manufacturing	*1300*	*2300*	*1000*
NIH	8900	9900	1000
DARPA	1400	2000	600
Total	17880	23130	5250
II. Commercialization			
Communications & Networking	100	600	500
Environmentally Conscious Manuf.	0	300	300
Transportation	220	520	300
Financing Tech.Commercialization	0	500	500
- DARPA, ATP, NIH			
- SBIR Extension			
Total	320	1920	1600
III. The Technology Base			
Manufacturing Extension	15	320	305
Eng.-Man. Curriculum	50	70	20
Univ-Ind.-Gov. Fellowships	0	15	15
Total	65	405	340
IV. Organization			
OSTP	4	6	2
DOC Tech Admin	5	13	8
Total	9	19	10
TOTAL CHANGE			7200

human resources, support industry relevant facilities and equipment, and provide manufacturing assistance to small and medium-sized companies. Finally, "Organization" consists of the institutional changes required to position the government for effective implementation of a national technology strategy.

Table 2

Table 2 presents a more detailed breakdown of recommendations and programs within each of the four categories. For each program, we indicate the base in FY92, the recommended funding level in FY95, and the total proposed change. Where recommendations correspond to an existing program (e.g., ATP, NSF's ERCs), the FY92 base numbers are directly from federal budget documents. In other cases, the base figures represent our closest estimate. The four sections in table 2 are described in more detail below.

Section I: Industry Driven R&D. Proposed budget increases for NIST, DARPA and NIH represent growth in industry-focused programs, not base programs. The recommendation for a 10-20 percent reallocation of DOE and NASA lab budgets for industry driven R&D does not appear in the table since it does not require any increase in lab funding, only an internal budget shift. The R&D tax credits are also not included in the table, as they are intended to be part of an overall

federal tax package. The estimated first year costs of the two new credits for industry-sponsored academic R&D and R&D consortia are as follows:

Academic R&D:
$1 billion/year x 25% = $250 million

R&D Consortia:
$100 million/year x 10% = $10 million

Section II: Commercialization. The budget increases in this category are relatively small in relation to those presented in the previous section. This is true for several reasons. First, many of the proposed increases for Industry-driven R&D and the Technology Base will also, by design, facilitate commercialization. Federally funded R&D that is focused on industry needs is more likely to generate technologies that can be quickly utilized by companies, and a strong technology base will help industry effectively absorb and apply technology. Second, although the proposed FY95 budgets for programs in this area are relatively small, the recommended increases are relatively substantial compared to their initial base. Finally, we are proposing first steps towards direct government financing of industry commercialization (e.g., authorizing agencies to extend loans or loan guarantees for commercialization of technology). Accordingly, the recommended budget for this new program is conservative and reflects its experimental nature.

Table 3
Technology Budget in Current Dollars

	FY92 (FY92 Dollars)	FY95 (FY95 Dollars*)
I. Industry-Driven R&D		
ATP	50	840
NIST Intramural	200	450
NSF's ERCs	50	337
Technology Initiatives:	7280	11001
- Computing	*560*	*1192*
- AMPP	*1660*	*2430*
- Biotechnology	*3760*	*4792*
- Manufacturing	*1300*	*2587*
NIH	8900	11136
DARPA	1400	2250
II. Commercialization		
Communications & Networking	100	675
Environmentally Conscious Manufacturing	0	337
Transportation	220	585
Financing Technology Commercialization	0	562
- DARPA, ATP, NIH		
- SBIR Extension		
III. The Technology Base		
Manufacturing Extension	15	360
Eng.-Man. Curriculum	50	79
Univ-Ind.-Gov. Fellowships	0	17
IV. Organization		
OSTP	4	7
DOC Tech Admin	5	15

* NOTE: *FY95 Dollars Based on a 4 Percent Annual Inflation Rate*

Section III: The Technology Base. The funding changes in this category focus primarily on manufacturing extension and university education. We have also recommended increasing access to government owned facilities. This recommendation requires little funding,

but could significantly strengthen the technology base available to industry. Support for a national information infrastructure, which is also an essential part of the Technology Base, appears in section II under the pilot development and demonstration project for Communications and Networking.

Section IV: Organization. The figures in this section represent changes in funding for OSTP and the Technology Administration within DOC. Although these increases are small relative to the three previous sections, the recommendations they support, including management of cross-agency technology programs and increased coordination of technology and economic policy, are crucial for effective execution of a national technology strategy.

Table 3

Table 3 presents the expected funding levels for all recommendations in 1995 dollars, assuming an annual inflation rate of 4 percent.

Notes

1. Technology is often defined as the application of knowledge for useful purposes.
2. Much of the literature on this is summarized in Ralph Landau, "How Competitiveness Can be Achieved," *Technology and Economics* (Washington, DC: National Academy Press, 1991).
3. The National Science Board categorizes the following R&D intensive sectors as "high technology": industrial chemicals (ISIC 351), drugs and medicines (ISIC 3522), engines and turbines (ISIC 3821), office and computing machinery (ISIC 3825), communication equipment (ISIC 3832), aerospace (ISIC 3845), and scientific instruments (ISIC 385). US National Science Board, *Science and Engineering Indicators: 1991* (Washington, DC: National Academy Press, 1991) p. 136.
4. US National Science Board, *op. cit.*, p. 137.
5. For a detailed analysis of factors leading to the postwar American lead in technology, see Richard R. Nelson and Gavin Wright, "The Rise and Fall of American Technology Leadership: The Postwar Era in Historical Perspective," *Journal of Economic Leadership* (Dec. 1992) pp. 1931-1960.
6. The US share of the global market for high-tech manufactures shrank from 40.4 percent in 1980 to 35.9 percent in 1990, while Japan's share grew from 18.3 percent to 29.2 percent over the same period. US National Science Board, *op. cit.*, p. 402.
7. See for example, Council on Competitiveness, *Gaining New Ground: Technology Priorities for America's Future* (Washington, DC: Council on Competitiveness, 1991); US Department of Commerce, Technology Administration, *Emerging Technologies: A Survey of Technical and Economic Opportunities* (Washington, DC: US Government Printing Office, 1990); and Japan Technology Evaluation Center, *JTEC Program Summary* (Baltimore, MD: JTEC, 1991).
8. McKinsey Global Institute, *Service Sector Productivity* (Washington, DC: McKinsey Global Institute, 1992) pp. 7-8.
9. National Science Foundation, *International Science and Technology Data Update: 1991* (Washington, DC: US Government Printing Office, 1991).
10. US National Science Board, *op. cit.*, p. 409.
11. *Ibid.* p. 342.
12. *Ibid.* p. 11.
13. See Center for Strategic and International Studies, *Integrating Commercial and Military Technologies for National Strength. An Agenda for Change* (Washington, DC: Center for Strategic and International Studies, 1991); and Herschel Kantor and Richard H. Van Atta, *Integrating the Defense and Civilian Technology and Industrial Bases: A Necessary Condition for Reconstitution* (Alexandria, VA: Institute for Defense Analyses, Dec. 1992).
14. John Alic et al., *Beyond Spin-off* (Boston: Harvard Business School Press, 1992) pp. 369-371.
15. For more detailed elaboration of this recommendation and the rationale behind it, see Council on Competitiveness, *Industry as a Customer of the Federal Laboratories* (Washington, DC: Council on Competitiveness, 1992).
16. For example, see Council on Competitiveness, *Picking Up the Pace: The Commercial Challenge to American Innovation* (Washington, DC: Council on Competitiveness, 1988); and National Academy of Sciences, *The Government Role in Civilian Technology: Building a New Alliance* (Washington, DC: National Academy Press, 1992).
17. Council on Competitiveness, *Competitiveness Index: 1992* (Washington, DC: Council on Competitiveness, 1992) p. 7.
18. For a detailed discussion of this issue, see Michael Porter, *Capital Choices: Changing the Way America Invests in Industry* (Washington, DC: Council on Competitiveness, 1992).
19. The National Research Council studied 282 case of linkages between US and Japanese companies in biotechnology. Over 90 percent of the technology flow in these linkages was from the US to Japan, and the vast majority of linkages were between small US companies and large Japanese companies. For details see National Research Council, *US-Japan Technology Links Biotechnology: Challenges for the 1990s* (Washington, National Academy Press, 1992).
20. Joseph G. Morone, *Winning in High-Tech Markets: The Role of General Management* (Boston, Harvard Business School Press, in press January 1993).
21. For a detailed discussion of this issue, see Porter, *op. cit.* Two other Competitiveness Policy Council Subcouncils—the Subcouncil on Capital Formation and the Subcouncil on Capital Markets and Corporate Governance—also addressed these issues in more detail.
22. For details see Council on Competitiveness, *Gaining New Ground: Technology Priorities for America's Future*, final report and research papers (Washington, DC: Council on Competitiveness, 1991). This report was based on studies of the technology needs of nine sectors of US industry.
23. For a thorough review of six major commercial R&D programs, see Linda R. Cohen and Roger Noll, *The Technol-*

ogy Pork Barrel (Washington, DC: The Brookings Institution, 1991).

24 A major recent study of this areas was undertaken by the DOD Advisory Panel on Streamlining Acquisition Laws. Their report is pending and is expected to be released in late 1992.

25. National Academy of Sciences, *The Government Role in Civilian Technology: Building a New Alliance* (Washington, DC: National Academy Press, 1992).

26. Philip Shapira, *Modernizing Manufacturing: New Policies to Build Industrial Extension Services* (Washington, DC: Economic Policy Institute, 1990).

27. *Ibid.*

28. For a detailed discussion and recommendations on getting more industry expertise in government, see National Academy of Engineering, *Science and Technology Leadership in American Government: Ensuring the Best Presidential Appointments* (Washington, DC: National Academy Press, 1992).

29. For more detail on this subject, see: Carnegie Commission on Science, Technology, and Government, *Science, Technology, and the States in America's Third Century* (New York: Carnegie Corporation of New York, 1992).

Selected References

Alic, John et. al. *Beyond Spin-off*. Boston, MA: Harvard Business School Press, 1992.

Carnegie Commission on Science, Technology, and Government. *New Thinking and American Defense Technology*. New York, N.Y.: Carnegie Corporation of New York,1990.

Carnegie Commission on Science, Technology, and Government. *Science, Technology, and the States in America's Third Century*. New York, N.Y.: Carnegie Corporation of New York, 1990.

Carnegie Commission on Science, Technology, and Government. *Technology and Economic Performance: Organizing the Executive Branch for a Stronger National Technology Base*. New York, N.Y.: Carnegie Corporation of New York, 1991.

Center for Strategic and International Studies. *Integrating Commercial and Military Technologies for National Strength: An Agenda for Change*. Report of the CSIS Steering Committee on Security and Technology. Washington, DC, 1991.

Cohen, Linda R. and Roger Noll. *The Technology Pork Barrel*. Washington, DC: The Brookings Institution, 1991.

Council on Competitiveness. *Competitiveness Index 1992*. Washington, DC, 1992.

Council on Competitiveness. *Gaining New Ground: Technology Priorities for America's Future*. Washington, DC: Council on Competitiveness, 1991.

Council on Competitiveness. *Industry as a Customer of the National Labs*. Washington, DC: Council on Competitiveness, 1992.

Council on Competitiveness. *Picking up the Pace: The Commercial Challenge to American Innovation*. Washington, DC: Council on Competitiveness, 1988.

Japan Technology Evaluation Center. *JTEC Program Summary*. 1991.

Labor Policy Institute. *Software and Hardhats: Technology and Workers in the 21st Century*. Washington, DC: Labor Policy Institute, 1992.

Landau, Ralph. "How Competitiveness Can be Achieved." *Technology and Economics*. Washington, DC: National Academy Press, 1991.

McKinsey Global Institute. *Service Sector Productivity*. Washington, DC: McKinsey Global Institute 1992.

Morone, Joseph G. *Winning in High-Tech Markets: The Role of General Management*. Boston, MA: Harvard Business School Press, in press January 1993.

National Advisory Committee on Semiconductors. *A National Strategy for Semiconductors: An Agenda for the President, the Congress, and the Industry*. Washington, DC: Government Printing Office, 1992.

National Academy of Sciences. *Science and Technology Leadership in American Government: Ensuring the Best Presidential Appointments*. Washington, DC: National Academy Press, 1992.

National Academy of Sciences. *The Government Role in Civilian Technology: Building a New Alliance*. Washington, DC: National Academy Press, 1992.

National Research Council. *US-Japan Technology Links Biotechnology: Challenges for the 1990s*. Washington, DC: National Academy Press, 1992.

Nelson, Richard R. and Gavin Wright, "The Rise and Fall of American Technological Leadership: The Post War Era in Historical Perspective," *Journal of Economic Literature*, Dec. 1992, pp. 1931-1960.

Office of Science and Technology Policy. *US Technology Policy*. Washington, DC: 1990.

The President's Commission on Industrial Competitiveness. *Global Competition. The New Reality*. Washington, DC: 1985.

Porter, Michael. *Capital Choices: Changing the Way America Invests in Industry*. Washington, DC: Council on Competitiveness, 1992.

US Department of Commerce. *Emerging Technologies*. US Government Printing Office, 1990.

US National Science Board. *International Science and Technology Data Update: 1991*. Washington, DC: US Government Printing Office, 1991.

US National Science Board. *Science and Engineering Indicators*. Washington, DC: US Government Printing Office, 1991.

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Finally, the Subcouncil would like to thank the Competitiveness Policy Council members and staff for their continuous guidance and dedicated support. Special thanks goes to the Council's Chairman, C. Fred Bergsten, and Executive Director, Howard Rosen.

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NEWS RELEASE

March 16, 1993

Contact: Howard Rosen (202) 387-9017

COMPETITIVENESS POLICY COUNCIL PROPOSES ENHANCEMENTS IN CLINTON ECONOMIC PROGRAM

JOINT HEARINGS BEFORE JOINT ECONOMIC COMMITTEE AND SENATE BANKING, HOUSING AND URBAN AFFAIRS COMMITTEE: 10:00 am, Room 538 Dirksen Senate Office Building

EMBARGO: March 16, 1993, 10:00 a.m., E.S.T.

Washington, March 16—In its Second Report to the President and Congress, the Competitiveness Policy Council proposes a detailed blueprint for a "comprehensive competitiveness strategy for America." Its program goes beyond that of President Clinton in three major respects: stronger incentives for private investment, a new export expansion strategy and sweeping education reform.

The Council concludes that "the United States continues to face major competitiveness problems" despite recent pickups in the growth of both the economy and national productivity. Moreover, it finds that "the problem has been developing for two or three decades... so it will take some time to restore America's competitiveness." The group believes the United States should seek a fundamental turnaround by the year 2000—the end of the decade, the end of the century, and the end of the next two presidential terms. It suggests that the American public wants and will support such an effort, and that the present period may offer a unique opportunity to launch the needed reforms.

The Competitiveness Policy Council is a bipartisan national commission created by the Congress. Its twelve corporate leaders, labor union presidents, high government officials and representatives of the public were appointed by the President and by the joint leadership of the Senate and House of Representatives. It is chaired by Dr. C. Fred Bergsten, Director of the Institute for International Economics.

The Council adopts several key goals for the year 2000:

- raising national productivity growth to an annual average of 2 percent from the 0.7 percent rate that prevailed from 1973 to 1991, thereby increasing family incomes by one third in a single generation;

-- achieving annual economic growth of at least 3-3 1/2 percent, to create enough high-wage jobs to restore full employment and a rising standard of living; and

-- eliminating the deficit in our external balance, halting the buildup of foreign debt that has turned America into the world's largest debtor nation.

To achieve these goals, the Council supports many of the investment proposals made by President Clinton and his budget program. The Council in fact expressed pleasure that the President's program includes a number of recommendations made both in its First Report, released in March 1992, and in its new Second Report. The Council's latest recommendations, however, go considerably further than those of the Administration in three areas.

First, American competitiveness and productivity will increase on a lasting basis only if private investment is raised permanently by at least 5 percent of GNP. Such investment should be encouraged through:

-- a permanent Equipment Tax Credit (ETC) rather than the temporary investment tax credit proposed for larger firms by the Administration;

-- a permanent Innovation and Commercialization Tax Credit (ICTC) to replace the recently expired Research and Experimentation Tax Credit, covering improvements in the manufacturing process as well as in product technology; and

-- depreciation allowances linked to the "competitive life" of equipment rather than its "tax life," which is often much longer and thus discourages new investment.

Second, international trade has become a crucial element of the American economy. We can compete at home only if we can compete abroad. The Council therefore recommends a major new export expansion strategy including:

-- increasing governmental export credits to $20 billion annually to compete fully with our major foreign rivals;

-- elimination or at least sharp reduction of export controls and other export disincentives that currently block billions of dollars of foreign sales by US companies;

-- doubling of the funding for, and sharp strengthening of, the government's export promotion effort; and

-- maintenance of competitive exchange rates, as called for in the Omnibus Trade and Competitiveness Act of 1988, via restoration of the currency reference ranges that were maintained during 1987-88.

Third, American competitiveness rests fundamentally on the skills of our people. The Council argues that "the bottom line is simple: if we want a higher standard of living, we will have to earn it by improving the education and training of our workforce." The Council therefore proposes sweeping educational reform including:

-- development of content and performance standards for what students should know and be able to do;

-- linking governmental assistance to higher education to actions by colleges to raise their admission standards;

-- adoption of a new uniform high school transcript to encourage employers to review school records;

-- development of "pay-for-knowledge" systems that reward teachers for acquiring the skills necessary to teach the new standards; and

-- rewards for districts and schools that are able to achieve these high standards.

The Council based most of its recommendations on the work of eight Subcouncils that it created a year ago to work on the problems to which it attached highest priority: Capital Formation, Corporate Governance and Financial Markets, Critical Technologies, Education, Manufacturing, Public Infrastructure, Trade Policy and Training. Over 200 leading Americans participated actively in developing the Subcouncils' analyses and proposals. The Council's program thus reflects a high degree of consensus among leaders of business, government (including 19 from the Administration and 22 members of Congress), labor and the public on most major aspects of improving American competitiveness. The full reports of all eight Subcouncils are appended to the Council's report and the Subcouncils will help the Council monitor the implementation of their respective proposals in 1993.

A summary of the Council's complete list of proposals is attached. Preliminary versions of its conclusions, and the reports of each of the Subcouncils, were conveyed to the newly elected Administration early in the transition period. Some of the more important, all which seek to sharply increase the "bang for each investment buck," include:

1. Worker training. The Council concludes that "the most striking waste of our national resources is in the tortuous road we force high school graduates to travel to make their initial entry into the work force. Other nations gain a 5 to 10 year head start (on the United States)... The government provides no help when (the young workers) need it most." In addition, "only five percent of our businesses have replaced traditional production with high performance systems." Remedies include:

   -- new school-to-work transition programs based on the German apprenticeship model;

   -- "lifetime learning systems" via more comprehensive corporate commitments to train all workers;

   -- doubling the resources available for retraining workers dislocated by structural changes in the economy; and

   -- broadening the current tax deduction for job-related educational expenses to cover training that improves employment skills beyond the current line of work.

2. Technology. It remains largely correct that "Americans are good starters while Japanese (and others) are good finishers." American industry has undervalued the importance of making continual improvements in products and processes, and of manufacturing in general. Government policy has emphasized scientific breakthroughs rather than commercial followthroughs. In addition to the new tax incentives already cited, the Government should:

   -- reorient its own R&D investment to civilian and dual-use purposes;

   -- rapidly expand the Advanced Technology Program in the Department of Commerce to an annual program level of $750 million; and

   -- modify federal procurement rules to make the government a better consumer of key technologies.

3. Corporate Governance. Major changes are obviously transpiring in the relationship among managements, boards of directors and shareholders in a number of companies. Continuation of that process should resolve many of the key governance problems. Companies should, however, also begin preparing periodic analyses of their long-term financial, strategic and organizational results in relation to goals established by management and the board. These should include non-financial measures of long-term prospects that emphasize intangibles such as worker training, quality of product, research and development and strategic positioning rather than relying solely on items which fall neatly into the traditional securities industry's valuations of price/earnings multiples.

4. Public Infrastructure. Public investment correlates closely with national productivity and yields high returns: 30-40 percent for maintenance of the highway system, 10-20 percent for expanding that system in congested areas. But such investments were only half as great in 1990 as in 1980 and were only one quarter as great as in Germany. One half of all American roads were recently rated "poor" or "low/fair." Highway congestion costs us an estimated $100 billion annually. Especially needed are:

   -- new intermodal strategies, particularly to support a national export effort;

   -- full funding for the Intermodal Surface Transportation Efficiency Act (ISTEA);

   -- an increase of $12 billion in additional annual spending to put our roads, bridges and mass transit into good working order;

   -- new federal techniques to encourage states to maintain roads and bridges, such as bond and grant covenants that incorporate a maintenance schedule; and

   -- adoption of higher roadbuilding standards (as in parts of Europe) and life-cycle costing for transportation design.

It is essential to pay for all these new programs responsibly. In addition, the national saving rate must be increased substantially to fund the required increase in national investment. Since no one has been able to devise effective policy proposals to increase private saving, the increased resources must be generated primarily by reducing the budget deficit of the federal government.

Competitiveness Policy Council
Second Report to the President and Congress
Summary of Recommendations

The Competitiveness Policy Council is a national commission established by the Congress in the Omnibus Trade and Competitiveness Act of 1988. Its mandate is to serve as a "national forum" and advise the President and Congress on improving the competitiveness of the United States.

The Council's membership is quadripartite: three corporate leaders (Rand Araskog, CEO of ITT, Jack Murphy, CEO of Dresser Industries; and Alexander B. Trowbridge, former President of the National Association of Manufacturers), three labor union presidents (Jack Barry, President of the International Brotherhood of Electrical Workers; Al Shanker, President of the American Federation of Teachers; and Lynn Williams, President of the United Steelworkers of America), three high level government officials (one appointment to be made by President Clinton; Edward Regan, Comptroller of New York State; and William Graves, Secretary of State of Kansas) and three representatives of the public interest (C. Fred Bergsten, Director of the Institute for International Economics; Bruce Scott, professor at the Harvard Business School; and Edward Vetter, President of Vetter and Associates.) The President, the joint leadership of the House and the joint leadership of the Senate each appointed four members. The group includes six Democrats and six Republicans.

The Council made its first report in March 1992, highlighting the seriousness of the nation's competitiveness problem, analyzing its underlying causes, outlining possible responses without making firm recommendations, and launching a process to develop such recommendations on the basis of in-depth analysis of the most important components of the issue. The Council established eight Subcouncils, as authorized in its legislative mandate, to develop specific policy recommendations in the following areas: Education, Training, Critical Technology, Corporate Governance, Trade Policy, Manufacturing, Public Infrastructure and Capital Formation. Over 200 leading American representatives of business, government, labor and the public participated in the eight Subcouncils. Together, the subcouncils held over 30 meetings throughout the country, preparing detailed analyses and proposals that provided the foundation for most of the recommendations that the Council is making in its Second Report to the President and Congress.

The Council sets out several goals in its Second Report:

1. The United States should double its growth of national productivity–from less than 1 percent annually to at least 2 percent. Higher productivity is the only way to raise the national standard of living. Meeting the target of increasing productivity growth by 1 percent annually would raise family incomes by one third in a single generation.

2. The economy must grow by at least 3-3½ percent annually, combining our targeted productivity growth of 2 percent with the expected annual growth of at least 1 percent in the country's labor force, to achieve and maintain full employment.

3. We must improve the quality of American jobs at the same time we preserve their quantity.

4. Economic models show that doubling productivity growth will require increasing national investment by at least 4-6 percent of GDP, or about $300 billion annually at current prices. Most of the expansion must come from the private sector.

5. This increase in investment should be financed domestically. The United States is already the world's largest debtor country and cannot prudently continue to depend on foreign capital.

6. The national saving rate will have to rise by 5-7 percent to fund both the targeted increase in national investment (4-6 percent) and the trade improvement (about 1 percent). This would restore it to the level that prevailed prior to 1973.

The central thrust of our recommendations is a sharp increase in private investment and a cutback in the growth of consumption, especially by the public sector. There is considerable overlap between the Council's recommendations and President Clinton's proposals in A Vision of Change for America. In some cases, the Council's recommendation go beyond the President's program--especially in encouraging private investment, export expansion and education reform.

Education

The Council believes that the key to improving American education is the establishment of rigorous content and performance standards along the lines of the National Education Goals. Educators and technical experts must develop assessments that are based on these new standards. Schools and districts as a whole must be held accountable for the progress their students make in achieving them. We must change expectations from minimum competency to high achievement for both college and work-bound students. Our K-12 students must become productive workers instead of entitled consumers.

None of these steps will succeed if students do not assume responsibility for their own learning. Working hard and achieving in school must "count" for students, whether they go to college or enter the labor force immediately. We must therefore give students a stake in high performance through the following steps:

- External assessments, phased in over a 10-12 year period, should be given to high school students with the results serving as a major factor in their qualifying for college and for better jobs at better wages;

- Colleges and universities should raise their admissions standards, over a similar 10-12 year period, to reinforce the shift to higher standards in elementary and high schools;

- The federal and state governments should condition their assistance to higher education on evidence that colleges and universities are raising their admission standards, and they should offer more favorable financial aid terms to students who meet high standards;

- No student who meets high standards should be denied the opportunity for higher education for financial reasons;

- Employers should be encouraged to review school records --including course grades, conduct, and teacher recommendations--in choosing among job applicants. A new uniform transcript, jointly designed by employers and schools, should be developed.

Training

Our Training Subcouncil made recommendations in four major dimensions associated with training. The first is continuous worker retraining, or "lifetime learning," which could be achieved through requiring firms to invest 1.5 percent of payroll in training ("play or pay"), federal grants or training tax credits.

The second dimension is the school-to-work transition. Our Subcouncil recommends continued experimentation with different types of school-to-work transition programs: apprenticeship programs, compacts, cooperative education, and career academies. The federal government should finance pilot programs of public-private cooperation, create a national youth service corps as already proposed by President Clinton, and earmark a portion of public works funds for youth apprenticeship programs. Most importantly, as with education, the federal government should insist that agreed skill standards provide the foundation for all these efforts. Secretaries Reich and Riley have already called for a similar strategy. President Clinton's plan calls for $1.2 billion over four years.

Third, the United States needs a comprehensive program to ease the adjustment process for all workers dislocated by technological change, defense conversion, increased international trade flows and other sources of structural change. Such a program should combine various aspects of existing programs with benefits that include job search assistance, skills assessment, counseling, referral services, adequate income support, payments for retraining programs and extended income and benefit payments through the training period. The Clinton program calls for $4.6 billion to develop this type of program.

Finally, we need to better coordinate various worker training programs at the local, state, and national levels in order to better serve our training needs. A body of experts should be brought together to standardize the myriad of current retraining programs. Within one year, the group should submit specific recommendations for eliminating duplication among the 125 federal employment and training programs currently spread across 14 federal agencies.

Technology

A major problem facing American competitiveness is the lag of American firms in converting technological advances into a competitive advantage in the marketplace--the "commercialization" of technology. The Council recommends:

1. Private sector R&D should be stimulated and expanded by implementation of a permanent, incremental Innovation and Commercialization Tax Credit (ICTC) to cover R&D on process improvements as well as product development. President Clinton has called for a similar Research and Experimentation Tax Credit. The Council recommends an additional 25 percent credit for industry-sponsored university research and, to help overcome corporate reluctance to test traditional antitrust tenets, an additional 10 percent credit for participation in the first two years of new R&D consortia registered under the Cooperative Research Act of 1984.

2. The government should use defense spending reductions to reorient its own R&D spending from purely military to civilian and dual use R&D. Defense research and exploratory development should be kept strong but the new R&D budget should also emphasize generic technologies.

3. Some of these funds should be used to expand federal support for cooperative projects in areas of strong industry-government mutual interest. Specific steps include:

    - Encouraging ARPA and the military services to actively promote dual use technologies;

    - Expanding the Advanced Technology Program in the Department of Commerce to an annual program level of about $750 million. President Clinton's plan calls for an increase of $138 million in FY 1994, rising to $680 million by FY 1997;

    - Allocating 10-20 percent of the resources of the multi-program labs operated by the Department of Energy, of the NASA labs, and of selected DOD labs to jointly planned and jointly funded industry/government R&D on the basis of model Cooperative Research and Development Agreements (CRADAs) with private firms; a similar initiative is outlined in President Clinton's plan;

    - Modifying Federal procurement rules to make the federal government a better consumer of leading edge technologies;

    - Authorizing ARPA, the Department of Commerce, the National Institutes of Health and perhaps others to participate directly in the commercialization of technologies they have supported.

Trade Policy

The Council recommends six major initiatives in this area.

1. The new Administration should place high priority on developing a global growth strategy with our G-7 partners, especially Japan and Germany.

2. We must aim to maintain equilibrium exchange rates. The United States should therefore seek agreement in the G-7 on a credible system of reference ranges as maintained during 1987-88.

3. The United States must push hard–through multilateral, regional and bilateral negotiations–to open foreign markets to American products. It is essential to bring the Uruguay Round to a successful conclusion. To preserve the full benefit of a NAFTA agreement, it will have to contain strong provisions protecting the environment, labor adjustment and worker rights. Bilateral talks are especially important with Japan, and the Structural Impediments Initiative should be revised and reinvigorated.

4. We recommend a sharp increase in the quality and quantity of US export credit programs. The annual program level of the Export-Import Bank should be increased to $20 billion.

5. US export promotion efforts should be sharply increased, focused and improved. Working within the framework of the new National Economic Council, the Trade Promotion Coordinating Committee should streamline the 150 current export promotion programs scattered across ten different agencies. A single budget function for export support, including export finance, should be created and funding for export promotion should be doubled over the next five years.

6. A major effort is needed to eliminate, or at least sharply limit, our own export disincentives that block billions of dollars of foreign sales by American companies.

Manufacturing

There are three specific policy measures that should be adopted to promote new investment, especially in manufacturing:

1. Establishment of an incremental and permanent Equipment Tax Credit (ETC). By limiting its coverage to equipment, and excluding plant and real estate investment, the credit can generate much higher payoff per dollar of tax expenditure. President Clinton has proposed a similar incremental tax credit for all businesses on a temporary basis, and for small businesses on a permanent basis.

2. The government should authorize industry consortia for joint production as well as research.

3. The tax code should be modified to permit firms to depreciate manufacturing process equipment, newly installed after the adoption of this policy, at a rate such that the "tax life" of the equipment would be equal to its "competitive life."

Public Infrastructure

Our Subcouncil on Public Infrastructure identified several components of the nation's transportation system that require particular attention:

1. Immediate full funding of the spending levels authorized in 1991 by Intermodal Surface Transportation Efficiency Act (ISTEA), an increase of about $4 billion over FY 1993. The Clinton program calls for

almost $3 billion in additional spending in FY 1993 and $2.6 billion above baseline spending in FY 1994.

2. The nation's air traffic control system needs basic reform. The Clinton program calls for $720 million over four years.

3. Continue funding for emerging transportation technologies – including intelligent vehicle and highway systems, high speed rail, and magnetic levitation trains – at their ISTEA levels. This is consistent with the Clinton program.

4. Extend the live of our existing national roads and bridges and increase the life expectancy of all new construction.

5. Over and above ISTEA's authorized levels, aim to raise the current level of infrastructure spending by up to $12.5 billion. This increase would includes $1 billion for intermodal improvements; $1 billion for bridges; $1.5 billion to stop endlessly deferring maintenance on our public transit systems; and $9 billion for necessary capacity expansions and pavement repairs on the National Highway System.

6. The Federal Government should establish a capital budget to help rationalize the government's investment process by distinguishing clearly between current and capital expenditures.

Competitiveness Policy Council

The Competitiveness Policy Council was established by Congress in the Omnibus Trade and Competitiveness Act of 1988. It is an independent federal advisory committee reporting to both the President and Congress.

Appointed by the President

Barbara Franklin* *(Government)*
Secretary
US Department of Commerce

Albert Shanker *(Labor)*
President
American Federation of Teachers

Alexander Trowbridge *(Business)*
President
Trowbridge Partners

Edward O. Vetter *(Public Interest)*
President
Edward O. Vetter and Associates

* Resigned January 20, 1993

Appointed by the Bipartisan Leadership of the US Senate

Rand V. Araskog *(Business)*
Chairman and CEO
ITT Corporation

John Barry *(Labor)*
President
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Testimony to
Committee on Banking, Finance and Urban Affiars
Subcommittee on Economic Growth
and Credit Formation
U.S. House of Representatives

Clyde V. Prestowitz, Jr.
President
Economic Strategy Institute

November 9, 1993

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President, Economic Strategy Institute

before the
Subcommittee on Economic Growth and Credit Formation
Committee on Banking, Finance and Urban Affairs
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Mr. Chairman, members of the Subcommittee, good afternoon and thank you for this opportunity to testify today.

Since its founding four years ago, the Economic Strategy Institute has been dedicated to developing an integrated, macro/micro economic strategy to realize America's full potential. We, obviously, are not the only organization in Washington interested in trade and competitiveness matters. As president of ESI, I also sit on two Competitiveness Policy Council subcouncils -- trade policy and public infrastructure. It is from this point of view that I would like to address my remarks.

The Competitiveness Policy Council has done very important work over the past three years in identifying many of the key ills that hurt American competitiveness. As a congressionally mandated national commission, its annual reports and other papers have performed the useful function of focusing the country's attention on some of the problems that need to be addressed in order to make America more competitive.

While the Council has done good work, I believe that it can do even better. As this committee begins consideration of legislation to reauthorize the Council, I would like to outline two areas where I believe the work of the Council can be improved.

The first area is the scope of the Council. Over the past several years, the Council has spent much of its time on a number of key macroeconomic issues -- trade, infrastructure, worker training etc. -- that effect American competitiveness. While the Council has produced useful work on these issues, I feel that it is time for the Council to change its focus. Most of the recommendations of the Council are good, common sense ideas that a large number of rational Americans can agree upon. This is because the Council is composed of a large number of experts representing a broad spectrum of opinion. There has been little controversy over the Council's recommendations

to date, because, so far, they represent relatively easy, common denominator recommendations. If the Council is reauthorized, as I believe it should be, I feel that it would be in the best interest of all Americans for the Council to remain relevant and useful by beginning to look at a new set of issues.

Mr. Chairman, I believe that the Council should turn its attention to the core issue of competitiveness -- the structure and composition of the domestic economy and international trade. This is issue has been best articulated in the famous quote "potato chips, computer chips, what's the difference they're both chips." This is at the heart of the competitiveness issue that most analysts have managed to avoid. The question is, is it important to the productivity and standard of living of Americans to maintain U.S. competitiveness in semiconductors? In super computers? In automobiles? In what other industries? That is the key question. If the answer is yes, the next question is what should we do.

Mr. Chairman, this is not a call to make the Council into a "mini-MITI." Instead, I believe the Council can play a vitally important role in examining effect the government policy -- be it regulatory, environmental, fiscal, or trade -- has on different industrial sectors and make recommendations in order to make these industries more competitive.

Let me give the Subcommittee an example, if I might. The Economic Strategy Institute earlier this year completed an examination of the domestic airline industry. In our study we found out that the federal government plays an important role in helping the industry make key decisions such as purchase of aircraft. Not only do government decisions effect the interest rates at which the airlines borrow money, but also when new aircraft must be purchased in order to meet new environmental regulations. Government policy also effects questions such as whether local safety and infrastructure requirements allow adding additional flights to a certain city and how much a company must allot in order to meet health care requirements. Internationally, the airlines rely on the federal government to negotiate international agreements to allow U.S. carriers to fly to overseas markets. In the future, the Council may want to look at and make recommendations on what sort of negotiating strategy the federal government will want to take that would allow U.S. carriers to use their status as the low cost producers in the world and expand their presence overseas.

A reorganized Council could be used to examine other industries. The choices are nearly limitless, so the Council will have to use some self-discipline as to not spread itself to thin. You will have the pick of the crop -- get people on the Council who have the expertise, talent and time to devote to the task.

By shifting from a macroeconomic emphasis to sectoral one does not, of course, mean that the areas that the Council has examined over past several years will

or should be ignored. These areas play an important role in determining the success or failure of a particular project.

Mr. Chairman, the second area in where I would make changes is in the size of the subcouncils. I feel that they are too large. The two subcouncils I am a member of -- trade policy and public infrastructure -- have 27 and 32 members respectively. While I understand the need to bring together as wide a view as possible, I feel that the subcouncils have gotten to be too big. When it comes time for them to make recommendations, I feel that they are reduced to meeting the least common denominator. The country needs a Council that can make tough, specific recommendations. Unfortunately, it is my experience that these decisions are watered down so that a majority will be able to sign onto the reports. With fewer people, say a mandated maximum of 12 or 15, it will be easier for the subcouncil to make the tough decisions necessary.

Mr. Chairman, I feel that the Council has done good work in the past and will continue to do good work in the future. As the Congress looks at the reauthorization of the Competitiveness Policy Council, I believe that it should also look forward to making the council even better. I thank you for your time and look forward to your questions.

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